

Command  
Reference  
Guide

# hp StorageWorks Fabric OS 4.2.x

First Edition (April 2004)

**Part Number:** AA-RV2AA-TE

This reference guide provides a detailed description of the Fabric OS commands.



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## contents

<b>About this Guide</b>	<b>17</b>
Overview	18
Intended Audience	18
Related Documentation	18
Conventions	19
Document Conventions	19
Text Symbols	19
Equipment Symbols	20
Rack Stability	22
Getting Help	23
HP Technical Support	23
HP Storage Website	23
HP Authorized Reseller	23
<b>1 Fabric OS Commands</b>	<b>25</b>
agtCfgDefault	26
agtCfgSet	30
agtCfgShow	34
aliAdd	37
aliCreate	39
aliDelete	41
aliRemove	43
aliShow	45
backplaneTest	47
backport	50
bannerSet	53
bannerShow	55
bcastShow	56
bladeBeacon	58
bladeDisable	60

bladeEnable. . . . .	62
bladePropShow . . . . .	64
camTest. . . . .	66
centralMemoryTest. . . . .	69
cfgactvshow . . . . .	75
cfgAdd . . . . .	77
cfgClear. . . . .	79
cfgCreate. . . . .	81
cfgDelete. . . . .	83
cfgDisable. . . . .	85
cfgEnable . . . . .	87
cfgRemove . . . . .	89
cfgSave . . . . .	91
cfgShow . . . . .	93
cfgSize . . . . .	96
cfgTransAbort. . . . .	98
cfgTransShow. . . . .	100
chassisName . . . . .	102
chassisShow . . . . .	103
chipPropShow. . . . .	106
chipRegShow . . . . .	108
cmemRetentionTest . . . . .	110
cmiTest . . . . .	113
configDefault . . . . .	116
configDownload . . . . .	118
configShow. . . . .	122
configUpload . . . . .	124
configure. . . . .	126
crossPortTest. . . . .	137
Online Mode . . . . .	138
Offline Mode. . . . .	139
dataTypeShow . . . . .	143
date . . . . .	145
dbgshow . . . . .	147
diagClearError . . . . .	148
diagCommandShow . . . . .	149
diagDisablePost . . . . .	151
diagEnablePost . . . . .	152

---

diagEsdPorts . . . . .	153
diagFailLimit . . . . .	155
diagHelp . . . . .	157
diagLoopid . . . . .	160
diagmodepr . . . . .	162
diagpost. . . . .	163
diagRetry. . . . .	165
diagSetBurnin . . . . .	166
diagSetCycle. . . . .	168
diagShow . . . . .	170
diagshowtime . . . . .	172
diagSilkWorm. . . . .	174
diagSkipTests . . . . .	176
diagStopBurnin. . . . .	178
dlsReset. . . . .	180
dlsSet. . . . .	181
dlsShow. . . . .	183
dnsConfig . . . . .	184
errClear . . . . .	186
errDump . . . . .	188
errNvLogSizeSet. . . . .	190
errNvLogSizeShow. . . . .	192
errSaveLvlSet . . . . .	194
errSaveLvlShow . . . . .	196
errShow. . . . .	197
exit . . . . .	199
fabPortShow . . . . .	200
fabretryshow . . . . .	203
fabricprincipal. . . . .	205
fabricShow . . . . .	207
fabstateclear . . . . .	209
fabStateShow . . . . .	210
fabStatsShow . . . . .	211
fabswitchshow . . . . .	213
fanDisable. . . . .	215
fanEnable . . . . .	216
fanShow . . . . .	217
fastBoot. . . . .	219

faZoneAdd .....	220
faZoneCreate.....	222
faZoneRemove .....	225
faZoneShow .....	227
fcpProbeShow.....	229
fcpRlsShow.....	231
fdmiCacheShow .....	233
fdmiShow .....	235
ficonClear .....	237
ficonHelp .....	239
ficonShow.....	241
filterTest .....	252
firmwareCommit.....	255
firmwareDownload.....	257
firmwareDownloadStatus.....	261
firmwareRestore .....	263
firmwareShow.....	265
fportTest .....	267
fruReplace.....	271
fspfShow.....	273
fwAlarmsFilterSet.....	276
fwAlarmsFilterShow.....	277
fwClassInit .....	278
fwConfigReload .....	279
fwConfigure .....	280
fwFruCfg.....	285
fwHelp .....	287
fwMailCfg.....	288
fwsamshow .....	292
fwSetToCustom .....	294
fwSetToDefault.....	295
fwShow.....	296
h .....	299
haDisable .....	301
haDump.....	302
haEnable .....	304
haFailover.....	305
haShow .....	307

---

haSyncStart . . . . .	309
haSyncStop . . . . .	310
help . . . . .	311
historyLastShow . . . . .	313
historyMode . . . . .	315
historyShow . . . . .	317
httpCfgShow . . . . .	319
i . . . . .	320
ifModeSet . . . . .	322
ifModeShow . . . . .	324
interfaceShow . . . . .	325
interopMode . . . . .	330
iodReset . . . . .	332
iodSet . . . . .	333
iodShow . . . . .	335
ipAddrSet . . . . .	336
ipAddrShow . . . . .	338
islshow . . . . .	340
itemList . . . . .	341
killTelnet . . . . .	344
licenseAdd . . . . .	346
licenseHelp . . . . .	348
licenseIdShow . . . . .	349
licenseRemove . . . . .	351
licenseShow . . . . .	353
linkCost . . . . .	354
login . . . . .	357
logout . . . . .	358
loopPortTest . . . . .	359
lsdbShow . . . . .	363
memShow . . . . .	367
msCapabilityShow . . . . .	368
msConfigure . . . . .	371
msPlatShow . . . . .	373
msPlatShowDbCb . . . . .	375
msPIClearDb . . . . .	377
msPIMgmtActivate . . . . .	379
msPIMgmtDeactivate . . . . .	381

mstdDisable . . . . .	383
mstdEnable . . . . .	385
mstdReadConfig . . . . .	387
myId . . . . .	388
nbrStateShow . . . . .	389
nbrStatsClear. . . . .	391
nodeFind . . . . .	393
nsAliasShow . . . . .	395
nsAllShow. . . . .	397
nscamShow . . . . .	399
nsShow . . . . .	401
nsStatShow . . . . .	403
nsZoneMember . . . . .	405
passwd. . . . .	407
pathinfo. . . . .	410
pdShow . . . . .	416
perfAddEEMonitor . . . . .	418
perfAddIPMonitor . . . . .	421
perfAddReadMonitor . . . . .	423
perfAddRWMonitor . . . . .	425
perfAddSCSIMonitor . . . . .	427
perfAddUserMonitor . . . . .	429
perfAddWriteMonitor. . . . .	433
perfCfgClear . . . . .	435
perfCfgRestore . . . . .	436
perfCfgSave . . . . .	438
perfClearEEMonitor . . . . .	439
perfClearFilterMonitor . . . . .	441
perfClrAlpaCrc . . . . .	443
perfDelEEMonitor . . . . .	445
perfDelFilterMonitor . . . . .	447
perfHelp . . . . .	449
perfSetPortEEMask . . . . .	451
perfShowAlpaCrc . . . . .	454
perfShowEEMonitor. . . . .	456
perfShowFilterMonitor. . . . .	459
perfShowPortEEMask . . . . .	462
pkiCreate. . . . .	465



---

pkiRemove . . . . .	466
pkiShow . . . . .	468
portAlphShow . . . . .	469
portCamShow . . . . .	471
portCfgDefault . . . . .	474
portCfgEport . . . . .	476
portCfgGport . . . . .	478
portCfgislMode . . . . .	480
portCfgLongDistance . . . . .	482
portCfgLport . . . . .	486
portCfgPersistentDisable . . . . .	488
portCfgPersistentEnable . . . . .	490
portCfgShow . . . . .	492
portCfgSpeed . . . . .	496
portCfgTrunkport . . . . .	498
portdebug . . . . .	500
portDisable . . . . .	501
portEnable . . . . .	503
portErrShow . . . . .	505
portFlagsShow . . . . .	507
portLEDTest . . . . .	509
portLogClear . . . . .	511
portLogConfigShow . . . . .	513
portLogDump . . . . .	514
portLogDumpPort . . . . .	516
portLogEventshow . . . . .	518
portLoginShow . . . . .	521
portLogPdisc . . . . .	523
portLogReset . . . . .	524
portLogResize . . . . .	525
portLogShow . . . . .	526
portLogShowPort . . . . .	529
portLogTypeDisable . . . . .	531
portLogTypeEnable . . . . .	532
portLoopbackTest . . . . .	533
portname . . . . .	537
portPerfShow . . . . .	539
portRegTest . . . . .	541

portRouteShow . . . . .	543
portShow . . . . .	546
portStats64Show . . . . .	550
portstatsclear . . . . .	552
portStatsShow . . . . .	554
portswap . . . . .	557
portSwapDisable . . . . .	559
portSwapEnable . . . . .	560
portSwapShow . . . . .	561
portTest . . . . .	563
portTestShow . . . . .	566
powerOffListSet . . . . .	568
powerOffListShow . . . . .	570
psShow . . . . .	572
ptDataShow . . . . .	574
ptPhantomShow . . . . .	576
ptPropShow . . . . .	578
ptRegShow . . . . .	580
ptRouteShow . . . . .	582
ptStatsShow . . . . .	584
quietMode . . . . .	586
reboot . . . . .	588
routeHelp . . . . .	589
saveCore . . . . .	591
secActiveSize . . . . .	597
secDefineSize . . . . .	599
secFabricShow . . . . .	601
secFcsFailover . . . . .	603
secGlobalShow . . . . .	605
secHelp . . . . .	607
secModeDisable . . . . .	608
secModeEnable . . . . .	610
secModeShow . . . . .	614
secNonFcsPasswd . . . . .	616
secPolicyAbort . . . . .	618
secPolicyActivate . . . . .	620
secPolicyAdd . . . . .	622
secPolicyCreate . . . . .	626

---

secPolicyDelete . . . . .	631
secPolicyDump . . . . .	634
secPolicyFcsMove . . . . .	638
secPolicyRemove . . . . .	640
secPolicySave . . . . .	644
secPolicyShow . . . . .	646
secStatsReset . . . . .	650
secStatsShow . . . . .	653
secTempPasswdReset . . . . .	656
secTempPasswdSet . . . . .	658
secTransAbort . . . . .	660
secVersionReset . . . . .	662
sensorShow . . . . .	664
setDbg . . . . .	666
setErrLvl . . . . .	667
setEsdMode . . . . .	668
setGbicMode . . . . .	670
setMediaMode . . . . .	672
setSfpMode . . . . .	674
setSplbMode . . . . .	676
setVerbose . . . . .	678
sfpShow . . . . .	679
shellFlowControlDisable . . . . .	683
shellFlowControlEnable . . . . .	684
slotOff . . . . .	685
slotOn . . . . .	686
slotPowerOff . . . . .	687
slotPowerOn . . . . .	688
slotShow . . . . .	689
snmpMibCapSet . . . . .	691
spinFab . . . . .	693
spinSilk . . . . .	697
sramRetentionTest . . . . .	703
statsTest . . . . .	706
stopPortTest . . . . .	708
supportShow . . . . .	710
supportShowCfgDisable . . . . .	715
supportShowCfgEnable . . . . .	717

supportShowCfgShow . . . . .	719
switchBeacon . . . . .	721
switchCfgPersistentDisable . . . . .	723
switchCfgPersistentEnable . . . . .	725
switchCfgSpeed . . . . .	727
switchCfgTrunk . . . . .	729
switchDisable . . . . .	730
switchEnable . . . . .	731
switchName . . . . .	733
switchReboot . . . . .	735
switchShow . . . . .	737
switchShutdown . . . . .	742
switchStart . . . . .	744
switchStatusPolicySet . . . . .	746
switchStatusPolicyShow . . . . .	750
switchStatusShow . . . . .	752
switchUptime . . . . .	754
syslogDIpAdd . . . . .	755
syslogDIpRemove . . . . .	757
syslogDIpShow . . . . .	758
systemVerification . . . . .	759
tempShow . . . . .	762
timeout . . . . .	764
topologyShow . . . . .	765
trackChangesHelp . . . . .	768
trackChangesSet . . . . .	769
trackChangesShow . . . . .	771
trunkDebug . . . . .	772
trunkShow . . . . .	774
tsClockServer . . . . .	776
tsHelp . . . . .	778
tsTimeZone . . . . .	779
turboRamTest . . . . .	781
txdPath . . . . .	784
upTime . . . . .	788
uRouteConfig . . . . .	790
urouteRemove . . . . .	792
urouteShow . . . . .	793

---

version. . . . .	796
wwn. . . . .	798
zoneAdd . . . . .	800
zoneCreate . . . . .	802
zoneDelete . . . . .	805
zoneHelp. . . . .	807
zoneRemove . . . . .	809
zoneShow . . . . .	811
<b>2 Licensed Product Commands . . . . .</b>	<b>813</b>
Advanced Zoning Commands . . . . .	814
Extended Fabrics Command. . . . .	815
Fabric Watch Commands . . . . .	816
ISL Trunking Commands. . . . .	817
Advanced Performance Monitoring Commands . . . . .	818
Secure Fabric OS Commands. . . . .	820
<b>3 Commands Unique to Fabric OS v4.2.x . . . . .</b>	<b>823</b>
Command and Fabric OS Versions . . . . .	824
<b>4 Fabric and Switch Management. . . . .</b>	<b>829</b>
Overview of Switch Management . . . . .	830
Fabric Management Recommendations . . . . .	831
Overview of the High Availability Feature . . . . .	832
Core Switch 2/64 and SAN Director 2/128 HA Features . . . . .	832
SAN Switch 2/8V, SAN Switch 2/16V, and SAN Switch 2/32 HA Features . . . . .	833
User Access Level . . . . .	835
Fabric OS Command Line Interface. . . . .	836
Web Tools. . . . .	837
Fabric Manager. . . . .	838
Fabric Watch. . . . .	840
Fabric OS Access Layer (API). . . . .	841
Management Server . . . . .	842
<b>5 Control Processor Commands . . . . .</b>	<b>843</b>
Commands Supported on the Active CP . . . . .	844
Commands Supported on the Standby CP . . . . .	845

<b>6 Security and Commands</b> .....	<b>847</b>
Commands Exclusive to the Primary FCS .....	848
<b>7 supportShow Reference</b> .....	<b>851</b>
supportShow Control Commands .....	852
supportShow Command Groups .....	853
Proc Entry Information Displayed .....	857
<b>Glossary</b> .....	<b>863</b>
<b>Index</b> .....	<b>907</b>
<b>Tables</b>	
1 Document conventions .....	19
2 Configure Command Fabric Parameters .....	127
3 Configure Command Virtual Channel Settings .....	130
4 Configure Command Arbitrated Loop Settings .....	131
5 Configure Command System Services Parameters .....	132
6 Configure Command Portlog Events Parameters .....	133
7 List of Filter Test Number, Definitions, and Action Types .....	252
8 Display Fields .....	273
9 fwConfigure Fabric Watch Classes and Areas .....	280
10 Command Field Description .....	320
11 Object Descriptions .....	342
12 LSDbShow Display Fields .....	363
13 PortShow Display Fields .....	545
14 Contributor Value and Status .....	746
15 Contributor Value and Status .....	750
16 Zoning Commands .....	814
17 Extended Fabric Command .....	815
18 Fabric Watch Commands .....	816
19 Trunking Commands .....	817
20 Performance Monitoring Commands .....	818
21 Secure Fabric OS Commands .....	820
22 Fabric OS Command Comparison .....	824
23 StorageWorks Core Switch 2/64 User Access Maximum Sessions .....	835
24 StorageWorks Core Switch Standby CP Commands .....	845
25 Commands Exclusive to the Primary FCS .....	848
26 supportShow Command Groups .....	853

27 Proc Entry Information Displayed .....	857
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## about this guide

This reference guide provides information to help you:

- Understand and use Fabric OS commands.
- Manage a switch or fabric.
- Contact technical support for additional assistance

“About this Guide” topics include:

- [Overview](#), page 18
- [Conventions](#), page 19
- [Rack Stability](#), page 22
- [Getting Help](#), page 23

## Overview

This section covers the following topics:

- [Intended Audience](#)
- [Related Documentation](#)

## Intended Audience

This book is intended for use by administrators who are experienced with the following:

- StorageWorks Fibre Channel SAN switches.
- Fabric Operating System V4.2.x or later.

## Related Documentation

Documentation, including white papers and best practices documents, is available via the HP website. Please go to:

<http://www.hp.com/country/us/eng/prodserv/storage.html>

To access Fabric Watch v4.2.x related documents:

1. Locate the "Networked storage" section of the web page.
2. Under "Networked storage," go to the "By type" subsection.
3. Click SAN infrastructure. The SAN infrastructure page displays.
4. Locate the Fibre Channel Switches section.
5. Locate the B-Series Fabric subsection, then go to the "Entry-level" subsection.
6. To access version 4.2.x documents (like this document), select SAN Switch 2/8V or SAN Switch 2/16V. The switch overview page displays.
7. Go to the "product information section," located on the far right side of the web page.
8. Click technical documents.
9. Follow the onscreen instructions to download the applicable documents.

## Conventions

Conventions consist of the following:

- [Document Conventions](#)
- [Text Symbols](#)
- [Equipment Symbols](#)

## Document Conventions

This document follows the conventions in [Table 1](#).

**Table 1: Document conventions**

Convention	Element
Blue text: <a href="#">Figure 1</a>	Cross-reference links
<b>Bold</b>	Menu items, buttons, and key, tab, and box names
<i>Italics</i>	Text emphasis and document titles in body text
Monospace font	User input, commands, code, file and directory names, and system responses (output and messages)
<i>Monospace, italic font</i>	Command-line and code variables
Blue underlined sans serif font text ( <a href="http://www.hp.com">http://www.hp.com</a> )	Web site addresses

## Text Symbols

The following symbols may be found in the text of this guide. They have the following meanings:



**WARNING:** Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.



**Caution:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

---

**Tip:** Text in a tip provides additional help to readers by providing nonessential or optional techniques, procedures, or shortcuts.

---

---

**Note:** Text set off in this manner presents commentary, sidelights, or interesting points of information.

---

## Equipment Symbols

The following equipment symbols may be found on hardware for which this guide pertains. They have the following meanings:



Any enclosed surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

**WARNING:** To reduce the risk of personal injury from electrical shock hazards, do not open this enclosure.

---



Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

**WARNING:** To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

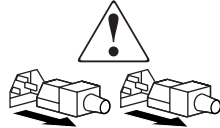
---



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

**WARNING:** To reduce the risk of personal injury from a hot component, allow the surface to cool before touching.

---



Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

**WARNING:** To reduce the risk of personal injury from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.

---



Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

---

## Rack Stability

Rack stability protects personnel and equipment.



**WARNING:** To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
  - The full weight of the rack rests on the leveling jacks.
  - In single rack installations, the stabilizing feet are attached to the rack.
  - In multiple rack installations, the racks are coupled.
  - Only one rack component is extended at any time. A rack may become unstable if more than one rack component is extended for any reason.
-

## Getting Help

If you still have a question after reading this guide, contact an HP authorized service provider or access our web site: <http://www.hp.com>.

## HP Technical Support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support/>. From this web site, select the country of origin.

---

**Note:** For continuous quality improvement, calls may be recorded or monitored.

---

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

## HP Storage Website

The HP web site has the latest information on this product, as well as the latest drivers. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution.

## HP Authorized Reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP web site for locations and telephone numbers: <http://www.hp.com>.





# Fabric OS Commands



This chapter lists the Fabric OS commands. It also shows their syntax and operands, and provides examples of their usage.

## agtCfgDefault

Resets the SNMP agent configuration to default values.

### Synopsis

```
agtcfgdefault
```

### Availability

admin

### Description

Use this command to reset the configuration of the SNMP agent to default values.

---

**Note:** On the Core Switch 2/64, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged in to.

---

The following values are reset to their defaults:

sysDescr	The system description. The default value is Fibre Channel Switch.
sysLocation	The location of the system. The default value is End User Premise.
sysContact	The contact information for the system. The default value is Field Support.
swEventTrapLevel	<p>The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are:</p> <ul style="list-style-type: none"><li>0 - none</li><li>1 - critical</li><li>2 - error</li><li>3 - warning</li><li>4 - informational</li><li>5 - debug</li></ul>

<code>authTraps</code>	When enabled, the authentication trap, <code>authenticationFailure</code> , is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).
------------------------	--

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The default values for the community strings are:

- Community 1: Secret Code
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the access control list (ACL) check.

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any hosts that start with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. The ACL check is turned off when all six entries contain 0.0.0.0.

---

**Note:** When secure mode is enabled, the access control list feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric.

---

## Operands

none

## Example

To set the SNMP agent configuration parameters to default values and verify they were set:

```
switch:admin> agtcfgDefault
*****
This command will reset the agent's configuration back to factory default
*****
Current SNMP Agent Configuration
Customizable MIB-II system variables:
    sysDescr = Fibre Channel Switch.
    sysLocation = End User Premise
    sysContact = Field Support
    sweventTrapLevel = 0
    authTraps = false

SNMPv1 community and trap recipient configuration:
Community 1: Secret C0de (rw)
    No trap recipient configured yet
Community 2: OrigEquipMfr (rw)
    No trap recipient configured yet
Community 3: private (rw)
    No trap recipient configured yet
Community 4: public (ro)
    No trap recipient configured yet
Community 5: common (ro)
    No trap recipient configured yet
Community 6: FibreChannel (ro)
    No trap recipient configured yet

SNMP access list configuration:
Entry 0: No access host configured yet
Entry 1: No access host configured yet
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet

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```

```

*****
Are you sure? (yes, y, no, n): [no] y
Committing configuration...done.
agent configuration reset to factory default
Current SNMP Agent Configuration
Customizable MIB-II system variables:
    sysDescr = Fibre Channel Switch
    sysLocation = End User Premise
    sysContact = Field Support
    swEventTrapLevel = 0
    authTrapsEnabled = false

SNMPv1 community and trap recipient configuration:
Community 1: Secret Code (rw)
    No trap recipient configured yet
Community 2: OrigEquipMfr (rw)
    No trap recipient configured yet
Community 3: private (rw)
    No trap recipient configured yet
Community 4: public (ro)
    No trap recipient configured yet
Community 5: common (ro)
    No trap recipient configured yet
Community 6: FibreChannel (ro)
    No trap recipient configured yet

SNMP access list configuration:
Entry 0: No access host configured yet
Entry 1: No access host configured yet
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet

```

## See Also

[agtCfgSet](#)

## agtCfgSet

Modifies the SNMP agent configuration.

### Synopsis

```
agtcfgset
```

### Availability

admin

### Description

Use this command to modify the configuration of the SNMP agent in the switch.

---

**Note:** On the Core Switch 2/64, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged in to.

---

Set the values for the following items:

<code>sysDescr</code>	The system description. The default value is Fibre Channel Switch.
<code>sysLocation</code>	The location of the system. The default value is End User Premise.
<code>sysContact</code>	The contact information for the system. The default value is Field Support.
<code>swEventTrapLevel</code>	<p>The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, <code>swEventTrap</code>, is sent to configured trap recipients. By default, this value is set at 0, implying that no <code>swEventTrap</code> is sent. Possible values are:</p> <ul style="list-style-type: none"><li>0 - none</li><li>1 - critical</li><li>2 - error</li><li>3 - warning</li><li>4 - informational</li><li>5 - debug</li></ul>

authTraps	When enabled, the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).
-----------	--

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The default values for the community strings are:

- Community 1: Secret Code
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the access control list (ACL) check.

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any hosts that start with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. The ACL check is turned off when all six entries contain 0.0.0.0.

---

**Note:** When secure mode is enabled, the access control list feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric.

---

## Operands

none

## Example

To modify the SNMP configuration values:

```
switch:admin> agtcfgSet

Customizing MIB-II system variables ...

At each prompt, do one of the following:
  o <Return> to accept current value,
  o enter the appropriate new value,
  o <Control-D> to skip the rest of configuration, or
  o <Control-C> to cancel any change.

To correct any input mistake:
<Backspace> erases the previous character,
<Control-U> erases the whole line,
sysDescr: [Fibre Channel Switch]
sysLocation: [End User Premise]
sysContact: [Field Support.]
swEventTrapLevel: (0..5) [0]
authTrapsEnabled (true, t, false, f): [false]

SNMP community and trap recipient configuration:
Community (rw): [Secret C0de]
Trap Recipient's IP address in dot notation: [192.168.15.41]
Community (rw): [OrigEquipMfr]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (rw): [private]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [public]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [common]
Trap Recipient's IP address in dot notation: [0.0.0.0]
Community (ro): [FibreChannel]
Trap Recipient's IP address in dot notation: [0.0.0.0]

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```



```

SNMP access list configuration:
Access host subnet area in dot notation: [0.0.0.0] 192.168.64.0
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
Access host subnet area in dot notation: [0.0.0.0]
Read/Write? (true, t, false, f): [true]
    sysDescr = Fibre Channel Switch.
    sysLocation = End User Premise
    sysContact = Field Support
swEventTrapLevel = 0
    authTraps = 0 (OFF)

SNMPv1 community and trap recipient configuration:
Community 1: Secret C0de (rw)
Trap recipient: 192.168.15.41
Community 2: OrigEquipMfr (rw)
No trap recipient configured yet
Community 3: private (rw)
No trap recipient configured yet
Community 4: public (ro)
No trap recipient configured yet
Community 5: common (ro)
No trap recipient configured yet
Community 6: FibreChannel (ro)
No trap recipient configured yet

SNMP access list configuration:
Entry 0: Access host subnet area 192.168.64.0 (rw)]
Entry 1: No access host configured yet
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet
Committing configuration...done.

```

## See Also

[agtCfgDefault](#)

[agtCfgShow](#)

## agtCfgShow

Displays the SNMP agent configuration.

### Synopsis

```
agtcfgshow
```

### Availability

all users

### Description

Use this command to display the configuration of the SNMP agent in the switch.

---

**Note:** On the Core Switch 2/64, there is one SNMP agent per logical switch. This command is specific to the logical switch you are logged in to.

---

The following information displays:

sysDescr	The system description. The default value is Fibre Channel Switch.
sysLocation	The location of the system. The default value is End User Premise.
sysContact	The contact information for the system. The default value is Field Support.
swEventTrapLevel	<p>The event trap level in conjunction with the event's severity level. When an event occurs and if its severity level is at or below the set value, the SNMP trap, swEventTrap, is sent to configured trap recipients. By default, this value is set at 0, implying that no swEventTrap is sent. Possible values are:</p> <ul style="list-style-type: none"><li>0 - none</li><li>1 - critical</li><li>2 - error</li><li>3 - warning</li><li>4 - informational</li><li>5 - debug</li></ul>

authTraps	When enabled, the authentication trap, authenticationFailure, is transmitted to a configured trap recipient in the event the agent received a protocol message that is not properly authenticated. In the context of SNMPv1 and SNMPv2c, this means that a request contains a community string that is not known to the agent. The default value for this parameter is 0 (disabled).
-----------	--

There are six communities and respective trap recipients supported by the agent. The first three communities are for read-write (rw) access and the last three are for read-only (ro) access. The default value for the trap recipient of each community is 0.0.0.0. The default values for the community strings are:

- Community 1: Secret Code
- Community 2: OrigEquipMfr
- Community 3: private
- Community 4: public
- Community 5: common
- Community 6: FibreChannel

For an SNMP management station to receive a trap generated by the agent, the administrator must configure a trap recipient to correspond to the IP address of the management station. In addition, the trap recipient must be able to pass the access control list (ACL) check.

The ACL check is as follows: there are six ACLs to restrict SNMP get/set/trap operations to hosts under a host-subnet-area. Host-subnet-area is defined by comparing nonzero IP octets. For example, an ACL of 192.168.64.0 enables access by any hosts that start with the specified octets. The connecting host is enabled to set each host-subnet-area to be read-write or read-only. The highest privilege matched out of six entries is given to the access. The ACL check is turned off when all six entries contain 0.0.0.0.

---

**Note:** When secure mode is enabled, the access control list feature is incorporated into the WSNMP and RSNMP security policies. Community strings can be changed on the primary FCS switch only and will propagate changes across the fabric.

---

## Operands

none

## Example

To display SNMP agent configuration information:

```
switch:admin> agtcfgShow
Current SNMP Agent Configuration
Customizable MIB-II system variables:
sysDescr = FC Switch
sysLocation = End User Premise
sysContact = Field Support.
swEventTrapLevel = 3
authTraps = 1 (ON)
SNMPv1 community and trap recipient configuration:
Community 1: Secret C0de (rw)
Trap recipient: 192.168.1.51
Community 2: OrigEquipMfr (rw)
Trap recipient: 192.168.1.26
Community 3: private (rw)
No trap recipient configured yet
Community 4: public (ro)
No trap recipient configured yet
Community 5: common (ro)
No trap recipient configured yet
Community 6: FibreChannel (ro)
No trap recipient configured yet

SNMP access list configuration:
Entry 0: Access host subnet area 192.168.64.0 (rw)]
Entry 1: No access host configured yet
Entry 2: No access host configured yet
Entry 3: No access host configured yet
Entry 4: No access host configured yet
Entry 5: No access host configured yet
```

## See Also

[agtCfgDefault](#)

[agtCfgSet](#)

## aliAdd

Adds a member to a zone alias.

### Synopsis

```
aliAdd "aliName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to add one or more members to an existing zone alias. The alias member list cannot contain another zone alias.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operands:

aliname	Specify the name of a zone alias, in quotation marks. This operand is required.
---------	---

member

Specify a member or list of members to be added to the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods:

- A switch domain and port area number pair. View the area numbers for ports using the [switchShow](#) command.
- WWN
- QuickLoop AL\_PAs

This operand is required.

## Example

To add members to zone aliases array1, array2, and loop1:

```
switch:admin> aliadd "array1", "1,2"  
switch:admin> aliadd "array2", "21:00:00:20:37:0c:72:51"  
switch:admin> aliadd "loop1", "0x02; 0xEF"
```

## See Also

[aliCreate](#)  
[aliDelete](#)  
[aliRemove](#)  
[aliShow](#)

## aliCreate

Creates a zone alias.

### Synopsis

```
aliCreate "aliName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to create a new zone alias. The zone alias member list must have at least one member (empty lists are not allowed). The alias member list cannot contain another zone alias. See the [zoneCreate](#) command for more information on name and member specifications.

Zone alias members can be specified using the area number to represent a specific port and slot combination. Area numbers are automatically assigned to a port by the Fabric OS. You can view the Area numbers using the [switchShow](#) command.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operands:

aliname	Specify a name for the zone alias, in quotation marks. This operand is required. A zone alias name must begin with a letter and can be followed by any number of letters, digits and underscore characters. Names are case sensitive: for example, "Ali_1" and "ali_1" are different zone aliases. Spaces are ignored.
member	<p>Specify a member or list of members to be added to the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods:</p> <ul style="list-style-type: none"><li>■ A switch domain and port area number pair. View the area numbers for ports using the <a href="#">switchShow</a> command.</li><li>■ WWN</li><li>■ QuickLoop AL_PAs</li></ul> <p>This operand is required.</p>

## Example

To create a zone alias:

```
switch:admin> alicreate "array1", "2,32; 2,33; 2,34"
switch:admin> alicreate "array2", "21:00:00:20:37:0c:66:23"
switch:admin> alicreate "loop1", "0x02; 0xEF; 5,4"
```

## See Also

[aliAdd](#)  
[aliDelete](#)  
[aliRemove](#)  
[aliShow](#)



## aliDelete

Deletes a zone alias.

### Synopsis

```
aliDelete "aliName"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to delete a zone alias.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operands:

aliname	Specify the name of a zone alias to be deleted. This operand must be enclosed in quotation marks. This operand is required.
---------	---

## Example

To delete the zone alias array2:

```
switch:admin> alidelete "array2"
```

## See Also

[aliAdd](#)

[aliCreate](#)

[aliRemove](#)

[aliShow](#)

## aliRemove

Removes a member from a zone alias.

### Synopsis

```
aliRemove "aliName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to remove one or more members from an existing zone alias.

If all members are removed, the zone alias is deleted.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operands:

aliname	Specify the name of a zone alias to have members removed, in quotation marks. This operand is required.
---------	---

member

Specify a member or list of members to be removed from the alias, in quotation marks, separated by semicolons. An alias member can be specified by one or more of the following methods:

- A switch domain and port area number pair. View the area numbers for ports using the [switchShow](#) command.
- WWN
- QuickLoop AL\_PAs

This operand is required. The member list is located by an exact string match; therefore, it is important to maintain the order when removing multiple members. For example, if a zone alias contains "1,2; 1,3; 1,4", then removing "1,3; 1,4" succeeds but removing "1,4; 1,3" fails.

## Example

Remove a World Wide Name from "array1":

```
switch:admin> aliremove "array1", "3,5"  
switch:admin> aliremove "array1", "21:00:00:20:37:0c:76:8c"  
switch:admin> aliremove "array1", "0xEF"
```

## See Also

[aliAdd](#)  
[aliCreate](#)  
[aliDelete](#)  
[aliShow](#)

## aliShow

Displays zone alias information.

### Synopsis

```
aliShow ["pattern"] [,mode]
```

### Availability

all users

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to display zone configuration information.

If a parameter is specified, it is used as a pattern to match zone alias names; those that match in the defined configuration are displayed.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operands:

`pattern`

A POSIX-style regular expression used to match zone alias names. This operand must be enclosed in quotation marks. Patterns can contain:

- Question mark (?), which is a placeholder for any single character
- Asterisk (\*), which is a placeholder for any string of characters
- Ranges, which are a placeholder for any character within the range. Ranges must be enclosed in brackets: for example, [0-9] or [a-f].

This operand is required.

*mode*

Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the nonvolatile memory. The default value is 0. This operand is optional.

If no parameters are specified, all zone configuration information (both defined and effective) is displayed. See [cfgShow](#) for a description of this display.

## Example

To display all zone aliases beginning with “arr”:

```
switch:admin> alishow "arr*"
alias: array1  21:00:00:20:37:0c:76:8c
alias: array2  21:00:00:20:37:0c:66:23
```

## See Also

[aliAdd](#)

[aliCreate](#)

[aliDelete](#)

[aliRemove](#)

## backplaneTest

Tests backplane connection for a multiple-blade configured system.

### Synopsis

```
backplanetest [--slot number][--passcnt count][--payload value][--pat type][--ports list][--verbose mode]
```

### Availability

admin

### Description

Use this command to verify the backplane connection for each blade through the back-end external (BE) ports. This command can only run on a multiple-blade configured system. It assumes that all blades available on the specified switch have passed the blade diagnostic tests. This command is not part of bladediag or bladediagshort. This command verifies backplane connection by using a functional blade's frame transmitter/receiver features.

---

**Note:** No other diagnostic can be executed until this test is completed.

---

### Options

This command has the following operands:

<code>--slot number</code>	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 has a total of 10 slots. Slot numbers 5 and 6 are control processor cards, and slots 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
<code>--passcnt count</code>	<p>Specify the number of times to perform this test. The default value is 1. This operand is optional.</p>

<code>-payload value</code>	Specify the byte size of the test frame payload. The payload size must be in multiples of 4 and the minimum size is 16. The default value is 512 bytes. This operand is optional.
<code>-pat type</code>	<p>Specify the test pattern type used in the test frame payload. The default test is 17(jCRPAT). The following test patterns can be specified:</p> <ul style="list-style-type: none"><li>■ 1 byte fill</li><li>■ 2 word fill</li><li>■ 3 quad fill</li><li>■ 4 byte not</li><li>■ 5 word not</li><li>■ 6 quad not</li><li>■ 7 byte ramp</li><li>■ 8 word ramp</li><li>■ 9 quad ramp</li><li>■ 10 byte lfsr</li><li>■ 11 random</li><li>■ 12 crpat</li><li>■ 13 cspat</li><li>■ 14 chalf sq</li><li>■ 15 cqtr sq</li><li>■ 16 rdram pat</li><li>■ 17 jCRPAT (default)</li><li>■ 18 jCJTPAT</li><li>■ 19 jCSPAT</li></ul>
<code>-ports itemlist</code>	Specify a list of blade ports to test. By default, all the blade ports in the specified slot are used. See the <code>itemlist</code> help pages for further details.
<code>-verbose mode</code>	Specify verbose mode with a value of 1, to have this command display more detailed information. The default value is 0. This operand is optional.



## Example

To test backplane connections on a Core Switch 2/64 or SAN Director 2/128:

```
switch:admin> backplanetest -ports 1/16, 18, 20 -payload 2048 -verbose 1
Running backplanetest .....

Test frame info for Backplane Connection Test:
# of frames: 1
sid data:    0xfffffd
did data:    0xfffffd
payload size: 2048 bytes

Test Complete: backplanetest Pass 1 of 1
Duration 0 hr, 0 min & 1 sec (0:0:1:715).
passed.
```

## Diagnostics

When this command detects failure(s), the subtest might report one or more of the following error messages:

```
DATA
TIMEOUT
XMIT
```

## See Also

[bladeDisable](#)

[itemList](#)

[systemVerification](#)

## backport

Tests for backend ASIC-to-ASIC links.

### Synopsis

```
backport [-nframes count][-ports itemlist][-lb_mode mode] [-fr_type type][-extonly enable]
```

### Availability

admin

### Description

Use this command to test the backplane routing and virtual channel (VC) allocation. This test applies to single blade as well as multiblade systems.

The following items are tested:

- Proper backend port domain routing setup such that every user port has a valid path to every other user port. If a valid path does not exist between any two user ports, that path will fail to transmit the first frame between the two ports.
- Proper virtual channel mapping such that an arbitrarily large number of frames might be transmitted without running out of credit. If the VC credit mapping is not correct then the test will fail after enough frames have been sent to exhaust the initial credit.
- Proper trunking of backend ports. The frames are sent in bursts. If the trunking is not set up properly, the burst of frames will not arrive in-order.
- ASIC errors along each path. The test will check for CRC and ENC errors for each port used between the source and destination ports to help isolate failures. It will also check that each member of every trunk group along the path has sent or received at least one frame.

Area routing between user ports is not tested. Use of this command assumes that the same database is used for domain and area routes; therefore, domain results are indicative of area operation.

---

**Note:** Virtual channel mapping is not tested if `-extonly` is set to 1.

---

## Options

This command has the following options:

<code>-nframes num</code>	Specify the number of frames per port to send. The test runs until the specified number of frames have been transmitted on each port. The total number of frames that this command circulates is determined at run time. The default value is 10 and the minimum value is 3. Any value less than the minimum is ignored and the minimum value of 3 is used.
<code>-ports list</code>	Specify a list of blade ports to test. By default, all the blade ports in the specified slot are used. See <a href="#">itemList</a> help pages for further details.
<code>-lb_mode mode</code>	Select the loopback point for the test. By default, backport uses internal loopback. Mode Description 1 - Port loopback (loopback plugs) 2 - External (SERDES) loopback 5 - Internal (parallel) loopback
<code>-fr_type type</code>	Specify the frame types to send. The default type is 1. Type Description 0 - single frame 1 - infab frames 2 - spinFab 1K frames
<code>-extonly enable</code>	Specify external-test-only mode. The default value is 0, which disables this mode. This command normally sends bursts of frames from each port under test to every other port in the list. With <code>-extonly</code> mode set to 1, the command sends only one burst of frames to each port from each ASIC pair-to-ASIC pair link. This tests all of the external connections with only $K * N$ frames instead of the $N^2$ frames required in all-to-all mode. This mode is intended to be used in ESS/burn-in testing to optimize test time. This command tests only the external connections between ASIC pair. <code>txdPath</code> us used to test the internal ASIC pair to ASIC pair paths. Valid values are: 0 - Send frames from all ports to all other ports. 1 - Send only one burst of frames to each link.

## Example

To test for backend ASIC pair links:

```
switch:admin> backport -ports 1/1-1/3 -nframes 10
One moment please ...
backport running...
backport: Completed 840 frames, status:  passed.
```

## Diagnostics

When the command detects failure(s), the test can report one or more of the following error messages:

```
ERR_STAT
ERR_STATS
INIT
PORT_DIED
PORT_STOPPED
XMIT
```

## See Also

[crossPortTest](#)  
[itemList](#)  
[portLoopbackTest](#)  
[spinFab](#)  
[spinSilk](#)  
[txdPath](#)

## bannerSet

Sets the banner on the local switch.

### Synopsis

```
bannerset [banner]
```

### Availability

admin

### Description

Use this command to set the banner on the local switch.

The banner is a string of alphanumeric characters. It is displayed whenever a user tries to log in to a switch.

The banner can be created using the `banner` operand or by entering the `bannerSet` command without an operand, making the session interactive.

If you enter the banner text using the interactive method, the valid length is 1022 characters. If the banner text length exceeds the maximum allowed, the software truncates the input. To close the banner text string, enter a period at the beginning of a new line.

### Operands

This command has the following operand:

<code>banner</code>	Specify a text string to be displayed when a user logs in. If you enter the banner text using the <i>banner</i> operand, the valid length is 116 characters. This operand is optional.
---------------------	--

## Example

To set a new banner for a switch:

```
switch:admin> bannerset "My banner"

switch:admin> bannerSet
Please input context of security banner (press "." RETURN at the
beginning of a newline to finish input): Do not log into this
switch if you are not an authorized administrator.
.
```

## See Also

[bannerShow](#)

## bannerShow

Displays the banner text.

### Synopsis

`bannershow`

### Availability

admin

### Description

Use this command to display the contents of the banner.

### Operands

none

### Example

To display the banner for a switch:

```
switch:admin> bannershow
Banner:
Do not log into this switch if you are not an authorized administrator.
```

### See Also

[bannerSet](#)

## bcastShow

Displays broadcast routing information.

### Synopsis

bcastShow

### Availability

all users

### Description

Use this command to display the broadcast routing information for all ports in the switch. The broadcast routing information indicates all ports that are members of the broadcast distribution tree: ports that are able to send and receive broadcast frames.

Normally, all F\_Ports and FL\_Ports are members of the broadcast distribution tree. The broadcast path selection protocol selects the E\_Ports that are part of the broadcast distribution tree. The E\_Ports are chosen in such a way to prevent broadcast routing loops.

The following fields display:

Group	The multicast group ID of the broadcast group
Member Ports	A map of all ports in broadcast tree
Member ISL Ports	A map of all E_Ports in broadcast tree
Static ISL Ports	Reserved

The broadcast routing information for the ports is displayed as a set of hexadecimal bit maps. For more information on reading hexadecimal bit maps, see the *hp StorageWorks Fabric OS 4.2.x Procedures User Guide*.

---

**Note:** The output from this command varies, depending on switch type.

---

### Operands

none



Example

To display the broadcast routing information for all ports in the switch:

```
switch:admin> bcastShow
Group      Member Ports      Member ISL Ports      Static ISL Ports
-----
256        0x00012083        0x00002080            0x00000000
           0x00000440        0x00000400            0x00000000
           0x00770000        0x00700000            0x00000000
           0x00008200        0x00000000            0x00000200
           0x00000000        0x00000000            0x00000000
```

See Also

[portRouteShow](#)

## bladeBeacon

Sets blade beaconing mode on or off.

### Synopsis

```
bladeBeacon [slotnumber] mode
```

### Availability

admin

---

**Note:** This command is only available on the Core Switch 2/64 and SAN Director 2/128.

---

### Description

Use this command to set the blade beaconing mode on or off. Specify either mode 1 to enable beaconing or mode 0 to disable beaconing.

When beaconing is enabled, the port LEDs flash amber in a running pattern from port 0 through port 15 and back again. The pattern continues until the user turns it off. This can be used to locate a physical unit.

Beaconing mode only takes over the port LEDs; it does not change the switch's functional behavior. The normal flashing LED pattern (associated with an active, faulty, or disabled port, for example) is suppressed and only the beaconing pattern is displayed. If a diagnostic frame-based test (such as [portLoopbackTest](#), [crossPortTest](#), or [spinSilk](#)) is executed, the two LED patterns are interwoven. The diagnostic test flickers the LEDs green and the beaconing mode runs the LEDs amber.

The [switchShow](#) command can be used to display if the status of blade beaconing mode is on or off.

### Operands

This command has the following operands:

slotnumber	Specify the slot number to enable bladebeacon.
------------	--

mode

Specify a value of 1 to set beaconing mode on. Specify a value of 0 to set beaconing mode off. This operand is required.

## Example

To turn the blade in slot 2 beaconing mode on and then off:

```
switch:admin> bladebeacon 2 1
switch:admin> bladebeacon 2 0
```

## See Also

[switchShow](#)

## bladeDisable

Disables a blade.

### Synopsis

```
bladedisable [slotnumber]
```

### Availability

admin

### Description

Use this command to disable a blade. All Fibre Channel ports are taken offline. If the switch was connected to a fabric through this blade, the remaining switches reconfigure, and this switch will configure based on the other blade ports.

The blade must be disabled before making configuration changes or before running many of the diagnostic tests.

The blade does not need to be disabled before rebooting or powering off.

Observe and verify the disable process by watching the front panel LEDs change to slow flashing yellow as each port of the blade disables

---

**Note:** A blade cannot be disabled or enabled when the switch is disabled.

---

### Operands

This command has the following operand:

<code>slotnumber</code>	Specify the slot number to be disabled.
-------------------------	---

### Example

To disable a blade:

```
switch:admin> bladedisable 2
```

**See Also**

[bladeEnable](#)

[portDisable](#)

[portEnable](#)

[switchShow](#)

## bladeEnable

Enables a blade.

### Synopsis

```
bladeenable [slotnumber]
```

### Availability

admin

### Description

Use this command to enable a blade. All Fibre Channel ports within the blade that did not fail POST are enabled; they might come online if connected to a device or remain offline if disconnected. The switch might need to be enabled if it was previously disabled to make configuration changes or to run diagnostics.

If the switch is connected to a fabric, it rejoins the fabric. After this command is issued, the 10-second fabric stability countdown is displayed. If this switch remains the principal switch at the end of the countdown, then it assigns itself a domain ID. If another switch assumes the principal role, then this switch becomes a subordinate switch and accepts a domain ID from the principal.

Observe and verify the enable process by watching the front-panel LEDs change from slow flashing amber as each port enables. The LEDs change to green for online ports, unlighted for disconnected ports, or amber for ports that do not initialize.

---

**Note:** A blade cannot be disabled or enabled when the switch is disabled.

---

### Operands

This command has the following operand:

<code>slotnumber</code>	Specify the slot number to be enabled.
-------------------------	--

## Example

To enable a blade in slot 2:

```
switch:admin> bladeenable 2  
10 9 8 7 6 5 4 3 2 1  
fabric Principal switch
```

## See Also

[bladeDisable](#)

[portDisable](#)

[portEnable](#)

[switchShow](#)

## bladePropShow

Displays the properties of a specified blade.

### Synopsis

```
bladePropShow [-slot] number]
```

### Availability

all users

### Description

Use this command to display the properties of a specified blade.

---

**Note:** The output of this command is intended for support use only.

---

### Options

This command has the following option:

<code>-slot number</code>	Specify the slot number of the blade you want to run diagnostics on. The default is set to 0 and designed to operate on fixed-port-count products.
---------------------------	--

### Example

To display the blade properties for blade 7:

```
switch:admin> bladepropshow --slot 1
Slot: 1
[2,4/8/64]
<0,1657/0001 1,1657/0001>
<2,1657/0001 3,1657/0001>
<4,1657/0001 5,1657/0001>
<6,1657/0001 7,1657/0001>
<0,8>=<1,9> <0,10>=<2,9> <0,6>=<3,7>
<1,9>=<0,8> <1,6>=<2,7> <1,10>=<3,9>
<2,9>=<0,10> <2,7>=<1,6> <2,10>=<3,11>
<3,7>=<0,6> <3,9>=<1,10> <3,11>=<2,10>
```



**See Also**[chipPropShow](#)[ptPropShow](#)

## camTest

Verifies QuickLoop's Content Addressable Memory (CAM) SID translation.

### Synopsis

```
camtest [--slot number][--passcnt count][--txport  
itemlist]
```

### Availability

admin

### Description

Use this command to verify that the CAM is functionally OK by performing hit and miss tests. The CAM is used by QuickLoop to translate the SID.

When a CAM is presented with a data, it checks if the data is present in its memory. A hit means the data is found in the CAM. A miss means the data is not found.

In this test, the CAM is filled with four kinds of data patterns:

1. A walking 1
2. A walking 0
3. A random pattern
4. An inverted version of the random pattern above

Once filled with each of the patterns above, a frame is sent and looped back internally. If a hit is expected (when the random or inverted random pattern is used) the original SID in the frame transmitted is received translated with the domain and area fields of the SID zeroed. If a miss is expected (when the walking 1 or walking 0 pattern is used) the original SID in the frame transmitted is received unchanged.

---

**Note:** This command cannot be executed on an enabled switch. You must first disable the switch using the [switchDisable](#) command.

---

## Operands

This command has the following operand:

<code>-slot number</code>	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and is designed to operate on fixed port count products.
<code>-passcnt count</code>	Specify the number of times to perform this test. The default value is 1.
<code>-slot itemlist</code>	Specify a list of blade ports to test. By default, all the blade ports in the specified slot ( <code>--slot</code> ) will be used. See the <a href="#">itemList</a> help pages for further details.

## Example

To verify CAM is functioning correctly:

```
switch:admin> camtest -txports 1/1
Running camtest .....
Test Complete: "camtest" Pass 1 of 1
Duration 0 hr, 0 min & 5 sec (0:0:5:14).
passed.
```

## Diagnostics

When failures are detected, the subtest might report one or more of the following error messages:

```
DIAG-CAMFLTR
DIAG-CAMINIT
DIAG-CAMSID
DIAG-CAMSTAT
DIAG-CANTXMIT
```

## See Also

[centralMemoryTest](#)  
[cmemRetentionTest](#)  
[cmiTest](#)  
[crossPortTest](#)  
[itemList](#)  
[portLoopbackTest](#)

portRegTest

spinSilk

sramRetentionTest

## centralMemoryTest

Tests ASIC-pair central memory operation.

### Synopsis

```
centralmemorytest [--slot number][--passcnt  
count][--datatype type][--ports itemlist][--seed value]
```

### Availability

admin

### Description

Use this command to execute an address and data bus verification of the ASIC SRAMs that serve as the central memory.

---

**Note:** This command cannot be executed on an enabled switch. You must first disable the switch using the [switchDisable](#) command.

---

The test consists of six subtests, each described next.

### Built-in Self-repair Subtest

The BISR subtest executes the built-in self-repair (BISR) circuitry in each ASIC. The BISR executes its own BIST, and cells found to be bad are replaced by redundant rows provided in each SRAM in the ASIC. Once the cells are replaced, the BIST is executed again.

The firmware sets up the hardware for the BISR/BIST operation and checks the results. If the done bit in each SRAM is not set within a time-out period, it reports the DIAG-CMBISRTO. If any of the SRAMs within the ASIC fails to map out the bad rows, its fail bit is set and the DIAG-CMBISRF error generated.

## Data Read/Write Subtest

The data write/read subtest executes the address and data bus verifications by running a specified unique ramp pattern D to all SRAMs in all ASICs in the switch. When all SRAMs are written with pattern D, the SRAMs are read and compared against the data previously written. This procedure is repeated with the complemented pattern ~D to ensure that each data bit is toggled during the test.

The default pattern used (by POST also) is a QUAD\_RAMP with a seed value of 0.

## ASIC-to-ASIC Connection Subtest

---

**Note:** This subtest is not available on 2 Gb/sec-capable switches.

---

The ASIC-to-ASIC connection subtest verifies that any port can read the data from any of the ASICs in the switch, thus verifying both the logic transmitting and receiving the data and the physical transmit data paths on the main board connecting all the ASICs to each other.

The test method is as follows:

1. Fill the central memory of all ASICs with unique frames.
2. Set up the hardware such that each ASIC is read by all of the ports in the switch. Data received is compared against the frame written into the ASIC.
  - Port 0 reads the central memory in ASIC 0.
  - Port 1 reads the central memory in ASIC 0.
  - Port 14 reads the central memory in ASIC 0.
  - Port 15 reads the central memory in ASIC 0.
  - Port 0 reads the central memory in ASIC 1.
  - Port 1 reads the central memory in ASIC 1.
  - Port 14 reads the central memory in ASIC 1.
  - Port 15 reads the central memory in ASIC 1.
  - Port 15 reads the central memory in ASIC 2.
  - Port 15 reads the central memory in ASIC 3.
3. Repeat [step 1](#) and [step 2](#) the for the complemented pattern.

4. Repeat this procedure for each ASIC pair in the blade under test.

The pattern used is generated similarly as in data read/write subtest except that only 2112 bytes are generated.

### **Parity Error Subtest**

The forced bad parity error subtest verifies that a bad parity can be detected, its error flag set, and interrupt bits set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Write 64 bytes with bad parity to all ASICs at offset 0.
3. Read each of the ASIC pairs at offset 0 and check that the error and interrupt bits are set.
4. Repeat steps 1 through 3 for offset 1 through 10.

### **Buffer Number Error Subtest**

The forced bad buffer number error subtest verifies that the bad buffer number in the data packet can be detected and its error flag and interrupt bits set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Set up the hardware so that transmission of data includes a bad buffer.
3. For each of the 11 possible offsets for each ASIC X in the switch:
  - a. Write a 64-byte pattern in the central memory.
  - b. Read X from all ASIC Y in the switch.
  - c. For ASIC X, ensure:
    - Interrupt status bits set.
    - The error type is buffer number error.
  - d. The port number in error is the receiver port (which is the base port of ASIC Y).
  - e. Check that all ASICs besides X are not interrupted or flagged with an error.

Reading the error register clears the CMEM interrupt bit, preparing for the next offset to test.

## Chip Number Error Subtest

The forced bad chip number error subtest verifies that the bad buffer number in the data packet can be detected and its error flag and interrupt bits set.

The test method is as follows:

1. Clear the error and interrupt bits of all ASICs.
2. Set up the hardware so that transmission of data includes a bad buffer.
3. For each of the 11 possible offsets for each ASIC X in the switch:
  - a. Write a 64-byte pattern in the central memory.
  - b. Read X from all ASIC Y in the switch.
  - c. For all ASIC Y, ensure:
    - Interrupt status bits set.
    - The error type is chip number error.
    - The port number in error is the receiver port (which is the base port of ASIC Y).

Reading the error register clears the CMEM interrupt bit, preparing for the next offset to test.

## Operands

This command has the following operands:

<code>-slot number</code>	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and is designed to operate on fixed port count products.
<code>-passcnt count</code>	Specify the number of test passes to run. By default the test will be run one time.
<code>-datatype type</code>	<p>Specify the type of data pattern to use. By default, type 9, QUAD_RAMP is used. For a complete list of supported data patterns run the <code>datatypeshow</code> command. Some common settings are:</p> <ol style="list-style-type: none"><li>1 BYTE_FILL pattern.</li><li>2 WORD_FILL pattern.</li><li>3 QUAD_FILL pattern.</li><li>9 QUAD_RAMP (Addr=Data) pattern.</li><li>11 RANDOM pattern.</li></ol>



<code>-ports itemlist</code>	Specify a list of blade ports to test. The Ports list is translated into a matching quad list before the test is run. By default all the blade ports in the specified slot ( <code>--slot</code> ) are tested. See the <code>itemlist</code> help pages for further details.
<code>-seed value</code>	Specify the data pattern seed to be used. The default seed value is 0.

## Example

To test the ASIC central memory:

```
switch:admin> centralmemorytest -ports 1/0-1/15
Running centralmemorytest .....
Test Complete: "centralmemorytest" Pass 1 of 1
Duration 0 hr, 0 min & 5 sec (0:0:5:412).
passed.
```

## Diagnostics

When this command detects failure(s), each subtest can report one or more of the following error messages:

```
Subtest 2
  LCMEM_ERR
  LCMRS_ERR
  LCMTQ_ERR

Subtest 3
  CM_NO_BUF
  LCMEMTX_ERR
  LCMRS_ERR
  LCMTQ_ERR

Subtest 4
  BAD_INT
  CM_ERR_PTN
  CM_ERR_TYPE
  TIMEOUT

Subtest 5
  BAD_INT
  CM_ERR_PTN
  CM_ERR_TYPE
  TIMEOUT
```

```
Subtest 6
  BAD_INT
  CM_ERR_PTN
  CM_ERR_TYPE
  TIMEOUT
```

## See Also

[camTest](#)

[cmemRetentionTest](#)

[cmiTest](#)

[crossPortTest](#)

[itemList](#)

[portLoopbackTest](#)

[portRegTest](#)

[spinSilk](#)

[sramRetentionTest](#)

## cfgactvshow

Displays current zone configuration information.

### Synopsis

cfgactvshow

### Availability

All users.

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to display the effective zone configuration information.

The current configuration is a single zone configuration that is currently in effect. The devices that an initiator sees are based on this configuration. The effective configuration is built when a specified zone configuration is enabled.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To display the effective zone configuration information:

```
switch:admin> cfgactvshow
Effective configuration:
cfg:    c4
zone:   z3      33:07:06:05:04:03:02:01
zone:   z4      44:01:23:45:67:89:a0:bc
```

## See Also

[cfgClear](#)  
[cfgCreate](#)  
[cfgDelete](#)  
[cfgRemove](#)  
[cfgSave](#)  
[cfgShow](#)

## cfgAdd

Adds a member to a zone configuration.

### Synopsis

```
cfgAdd "cfgName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to add one or more members to an existing zone.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become in effect, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operands:

<code>cfgName</code>	Specify a name for the zone configuration in quotation marks. This operand is required.
<code>member</code>	<p>Specify a zone member or a list of zone members to be added to the configuration, in quotation marks, separated by semicolons. Members can be specified in one or more of the following ways:</p> <ul style="list-style-type: none"><li>■ Zone names</li><li>■ QuickLoop names</li><li>■ FA (Fabric Assist) zone names</li></ul> <p>This operand is required.</p>

## Example

To add two new zones to the configuration “Test\_cfg”:

```
switch:admin> cfgAdd "Test_cfg", "redzone; bluezone"
```

## See Also

[cfgClear](#)  
[cfgCreate](#)  
[cfgDelete](#)  
[cfgDisable](#)  
[cfgEnable](#)  
[cfgRemove](#)  
[cfgSave](#)  
[cfgShow](#)  
[cfgTransAbort](#)  
[cfgTransShow](#)

## cfgClear

Clears all zone configurations.

### Synopsis

cfgClear

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to clear all zone information in the transaction buffer. All defined zone objects in the transaction buffer are deleted. If an attempt is made to commit the empty transaction buffer while a zone configuration is enabled, you are warned to first disable the enabled zone configuration or to provide a valid configuration with the same name.

After clearing the transaction buffer using the [cfgClear](#) command, use the [cfgDisable](#) command to commit the transaction and then disable and clear the zone configuration in nonvolatile memory for all the switches in the fabric.

If no current zoning configuration exists, use the [cfgSave](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

## Example

To clear all zones, and then clear non-volatile memory:

```
switch:admin> cfgClear
Do you really want to clear all configurations?
(Yes, y, no, n): [no] yes
switch:admin> cfgsave
```

## See Also

- [cfgAdd](#)
- [cfgCreate](#)
- [cfgDelete](#)
- [cfgDisable](#)
- [cfgEnable](#)
- [cfgRemove](#)
- [cfgSave](#)
- [cfgShow](#)
- [cfgTransAbort](#)
- [cfgTransShow](#)



## cfgCreate

Creates a zone configuration.

### Synopsis

```
cfgCreate "cfgName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to create a new zone configuration.

A zone configuration name must begin with a letter that can be followed by any number of letters, numbers, and underscores. Names are case sensitive: for example, Cfg\_1 and cfg\_1 are different zone configurations. Blank spaces are ignored.

The zone configuration member list must have at least one member. Empty member lists are not allowed.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

See the [zoneCreate](#) command for more information on name and member specifications

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operands:

<code>cfgName</code>	Specify a name for the zone configuration in quotation marks. This operand is required.
<code>member</code>	<p>Specify a zone member or list of zone members to be added to the configuration, in quotation marks, and separated by semicolons. Members can be specified in one or more of the following methods:</p> <ul style="list-style-type: none"><li>■ Zone names</li><li>■ QuickLoop names</li><li>■ FA (Fabric Assist) zone names</li></ul> <p>This operand is required.</p>

## Example

To create a configuration containing three zones:

```
switch:admin> cfgCreate "Test_cfg", "redzone; bluezone; greenzone"
```

## See Also

[cfgAdd](#)  
[cfgClear](#)  
[cfgDelete](#)  
[cfgDisable](#)  
[cfgEnable](#)  
[cfgRemove](#)  
[cfgSave](#)  
[cfgShow](#)  
[cfgTransAbort](#)  
[cfgTransShow](#)

## cfgDelete

Deletes a zone configuration.

### Synopsis

```
cfgDelete "cfgName"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to delete a zone configuration.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become in effect, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operand:

cfgName	Specify the name of zone configuration to be deleted in quotation marks. This operand is required.
---------	--

### Example

To delete a zone configuration:

```
switch:admin> cfgDelete "Test_cfg"
```

## See Also

[cfgAdd](#)  
[cfgCreate](#)  
[cfgDelete](#)  
[cfgDisable](#)  
[cfgEnable](#)  
[cfgRemove](#)  
[cfgSave](#)  
[cfgShow](#)  
[cfgTransAbort](#)  
[cfgTransShow](#)

## cfgDisable

Disable a zone configuration.

### Synopsis

cfgDisable

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to disable the current zone configuration. The fabric returns to nonzoning mode, in which all devices see each other.

This command ends and commits the current zoning transaction buffer to both volatile and nonvolatile memory. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switches to indicate the aborting of the transaction.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To disable the current zone configuration:

```
switch:admin> cfgDisable
Updating flash...
```

## See Also

[cfgAdd](#)  
[cfgCreate](#)  
[cfgDelete](#)  
[cfgEnable](#)  
[cfgRemove](#)  
[cfgSave](#)  
[cfgShow](#)  
[cfgTransAbort](#)  
[cfgTransShow](#)

## cfgEnable

Enables a zone configuration.

### Synopsis

```
cfgEnable "cfgName"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to commit any zone configuration in the transaction buffer to the volatile and nonvolatile memory and enable the specified zone configuration. This command ends the current zoning transaction.

The specified zone configuration is built by checking for undefined zone names, zone alias names, or other inconsistencies by expanding zone aliases, removing duplicate entries, and then installing the current configuration.

If the build fails, the previous state is preserved (zoning remains disabled, or the previous configuration remains in effect). If the build succeeds, the new configuration replaces the previous configuration. See the [cfgShow](#) command for a description of defined and current configurations.

This command ends and commits the current transaction. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switches to indicate the aborting of the transaction.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operand:

<code>cfgName</code>	Specify the name of a zone configuration to enable in quotation marks. This operand is required.
----------------------	--

## Example

To enable the zone configuration “Test\_cfg”:

```
switch:admin> cfgEnable "Test_cfg"  
zone config "Test_cfg" is in effect
```

## See Also

- [cfgAdd](#)
- [cfgCreate](#)
- [cfgDelete](#)
- [cfgDisable](#)
- [cfgRemove](#)
- [cfgSave](#)
- [cfgShow](#)
- [cfgTransAbort](#)
- [cfgTransShow](#)



## cfgRemove

Removes a member from a zone configuration.

### Synopsis

```
cfgRemove "cfgName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to remove one or more members from an existing zone configuration.

The member list is located by an exact string match; therefore, it is important to maintain their order when removing multiple members. For example, if a zone configuration contains “zone2; zone3; zone4”; then removing “zone3; zone4” succeeds but removing “zone4; zone3” fails.

If all members are removed, the zone configuration is deleted.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become in effect, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

The following operands are required:

cfgName	Specify a name of a zone configuration, in quotation marks.
---------	---

member

Specify a zone members to be added to the configuration, in quotation marks and separated by semicolons. Members can be specified in one or more of the following methods:

- Zone names
- QuickLoop names
- FA (Fabric Assist) zone names

This operand is required.

## Example

To remove a zone from a configuration:

```
switch:admin> cfgRemove "Test_cfg", "redzone"
```

## See Also

[cfgAdd](#)  
[cfgCreate](#)  
[cfgDelete](#)  
[cfgDisable](#)  
[cfgEnable](#)  
[cfgSave](#)  
[cfgShow](#)  
[cfgTransAbort](#)  
[cfgTransShow](#)

## cfgSave

Saves zone configuration to nonvolatile memory.

### Synopsis

cfgSave

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to save the current zone configuration. The defined configuration and the name of the enabled configuration are written to nonvolatile memory in all switches in the fabric.

The saved configuration is automatically reloaded by the switch on power on and, if a configuration was in effect at the time it was saved, the same configuration is reinstalled with an automatic [cfgEnable](#) command.

Because the saved configuration is reloaded at power on, only valid configurations are saved. [cfgSave](#) verifies that the enabled configuration is valid by performing the same tests as [cfgEnable](#). If the tests fail, an error is displayed and the configuration is not saved. Tests might fail if a configuration has been modified since the last [cfgEnable](#).

This command ends and commits the current transaction. If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch is automatically aborted. A message is displayed on the other switches to indicate the aborting of the transaction.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

none

## Example

To save a zone configuration:

```
switch:admin> cfgSave  
Updating flash...
```

## See Also

- [cfgAdd](#)
- [cfgCreate](#)
- [cfgDelete](#)
- [cfgDisable](#)
- [cfgEnable](#)
- [cfgRemove](#)
- [cfgShow](#)
- [cfgTransAbort](#)
- [cfgTransShow](#)

## cfgShow

Displays zone configuration information.

### Synopsis

```
cfgShow [ "pattern" ] [, mode]
```

### Availability

all users

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to display zone configuration information.

If no operand is specified, all zone configuration information (both defined and effective) displays.

If an operand is specified, it is used as a pattern to match zone configuration names in the defined configuration; those that match the pattern displays.

The defined configuration is the complete set of all zone objects that have been defined in the fabric. There can be multiple zone configurations defined, but only one can be enabled at a time. There might be inconsistencies in the definitions, zones, or aliases that are referenced but not defined, or there might be duplicate members. The defined configuration is the current state of the administrator input.

The effective configuration is the single zone configuration that is currently enabled. The devices that an initiator sees in the fabric are based on this configuration. The effective configuration is built when a specific zone configuration is enabled and all error checking has been completed successfully.

---

**Note:** When security is enabled, this command can be issued on any FCS switch in the fabric.

---

## Operands

This command has the following operands:

pattern

A POSIX-style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks, and can contain:

- Question mark "?", which is a placeholder for any single character
- Asterisk "\*", which is a placeholder for any string of characters
- Ranges which are a placeholder for any character within the range. Ranges must be enclosed in brackets: for example, [0-9] or [a-f].

This operand is optional.

mode

Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the non-volatile memory. The default value is 0. This operand is optional.

## Examples

To display all zone configurations that start with "Test:"

```
switch:admin> cfgShow "Test"
cfg:   Test1 Blue_zone
cfg:   Test_cfg Red_zone; Blue_zone
```

To show all zone configuration information:

```
switch:admin> cfgShow
Defined configuration:
  cfg:   USA1      Blue_zone
  cfg:   USA_cfg Red_zone; Blue_zone
  zone:  Blue_zone
        1,1; array1; 1,2; array2
  zone:  Red_zone
        1,0; loop1
  alias: array1  21:00:00:20:37:0c:76:8c; 21:00:00:20:37:0c:71:02
  alias: array2  21:00:00:20:37:0c:76:22; 21:00:00:20:37:0c:76:28
  alias: loop1   21:00:00:20:37:0c:76:85; 21:00:00:20:37:0c:71:df

Effective configuration:
  cfg:   USA_cfg
  zone:  Blue_zone
        1,1
        21:00:00:20:37:0c:76:8c
        21:00:00:20:37:0c:71:02
        1,2
        21:00:00:20:37:0c:76:22
        21:00:00:20:37:0c:76:28
  zone:  Red_zone
        1,0
        21:00:00:20:37:0c:76:85
        21:00:00:20:37:0c:71:df
```

To show only configuration names:

```
switch:admin> cfgshow *
cfg:   a_cfg1 zone1; zone2
cfg:   b_cfg2 zone1; zone2; zone3
```

## See Also

- [cfgAdd](#)
- [cfgCreate](#)
- [cfgDelete](#)
- [cfgDisable](#)
- [cfgEnable](#)
- [cfgRemove](#)
- [cfgSave](#)
- [cfgTransAbort](#)
- [cfgTransShow](#)

## cfgSize

Displays zone database size details.

### Synopsis

```
cfgsize [integer]
```

### Availability

all users

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to display the size details of the zone database.

The size details include the Zone DB maximum size, the committed size, and the transaction size. All sizes are in bytes.

Zone DB max size is the upper limit for the defined configuration, determined by the amount of flash memory available for storing the defined configuration.

Committed size is the size of the defined configuration currently stored in flash.

Transaction size is the size of the uncommitted defined configuration. This value will be nonzero if the defined configuration is being modified by telnet, API, and so forth; otherwise it is 0.

See [cfgShow](#) for a description of defined and effective configurations

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---



## Operands

This command has the following operand:

<code>integer</code>	If a non-zero integer is specified as the parameter, the size of the flash memory allocated for the zone database is displayed. The zone database includes both the defined and effective configurations. This size is in kilobytes. This operand is optional.
----------------------	--

## Example

To display size details of the defined configuration:

```
switch:admin> cfgsize
Zone DB max size - 127726 bytes
    committed - 8812
    transaction - 0

switch:admin> cfgsize 1
Zone DB flash size - 131028 bytes
```

## See Also

[cfgShow](#)

## cfgTransAbort

Abort the current zoning transaction.

### Synopsis

```
cfgTransAbort [token]
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to abort the current zoning transaction without committing it. All changes made since the transaction was started will be removed and the zone configuration database restored to the state before the transaction was started.

If a transaction is open on a different switch in the fabric when this command is run, the transaction on the other switch remains open and unaffected.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operand:

token	Specify the token ID of an abortable transaction. Use the <code>cfgTransShow</code> command to obtain the token ID of a transaction.
-------	--

## Example

To abort the current transaction:

```
switch:admin> cfgtransabort
```

## See Also

- [cfgAdd](#)
- [cfgCreate](#)
- [cfgDelete](#)
- [cfgDisable](#)
- [cfgEnable](#)
- [cfgRemove](#)
- [cfgSave](#)
- [cfgShow](#)
- [cfgTransShow](#)

## cfgTransShow

Displays information about the current zoning transaction.

### Synopsis

cfgtransshow

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to display the ID of the current zoning transaction. It will also give the information about whether the transaction can be aborted or not. The transaction cannot be aborted if it is an internal zoning transaction.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To display the current transaction:

```
switch:admin> cfgtransshow
There is no outstanding zone transactions
switch:admin> cfgclear
Do you really want to clear all configurations? (yes, y, no, n): [no] y
Clearing All zoning configurations...
switch:admin> cfgtransshow
Current transaction token is 271010736
It is abortable
```

**See Also**

[cfgAdd](#)  
[cfgCreate](#)  
[cfgDelete](#)  
[cfgDisable](#)  
[cfgEnable](#)  
[cfgRemove](#)  
[cfgSave](#)  
[cfgShow](#)  
[cfgTransAbort](#)

## chassisName

Displays or sets the chassis name for an edge switch.

### Synopsis

`chassisName [name]`

### Availability

admin (set)

all users (display)

### Description

Use this command to change the name associated with the chassis. In the Core Switch 2/64, there are two logical switches associated with a single chassis.

Enter this command with no parameter to display the current name.

Enter this command with a name operand to set the chassis name.

### Operands

This command has the following operand:

name	Specify a new name for the chassis. Chassis names can be up to 15 characters long and must begin with a letter. The name must consist of letters, digits, or underscore characters.
------	---

### Example

To change the chassis name to “edgeswitch:”

```
switch:admin> chassisname
coreswitch
switch:admin> chassisname edgeswitch
switch:admin> chassisname
edgeswitch
```

### See Also

[switchName](#)

## chassisShow

Displays all field replaceable units (FRUs).

### Synopsis

```
chassisShow
```

### Availability

all users

### Description

Use this command to inventory and display the FRU header content for each object in the chassis.

On some platforms for certain FRU types, a few items might not be available. In these cases, the lines will be suppressed. Possibly affected are lines 2 through 6, 8, and 10 through 13. In addition, for lines 10 through 13, if there is no data set, these lines will be suppressed.

The header data is formatted into a record consisting of up to 13 lines. The lines and their meaning are described below:

1. The first line of each record contains the object ID:

Object type:	CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (World Wide Name), or UNKNOWN; and
Object number:	Slot <nn> (for blades), Unit <nn> (for everything else).

If the FRU is part of an assembly, a brief description in parentheses will be displayed.

2. This line displays the FRU header version number:

```
Header Version: <x>
```

3. This line displays the value used to calculate the object's power consumption, positive for power supplies, negative for consumers:

```
Power Consume Factor: <-xxx>
```

4. This line displays the part number (up to 14 characters):  
Part Num: <xx-xxxxxx-xx>
5. This line displays the serial number (up to 12 characters):  
Serial Num: <xxxxxxxxxx>
6. This line displays the date the FRU was manufactured:  
Manufacture: Day: <dd> Month: <mm> Year: <yyyy>
7. This line displays the date the FRU header was last updated:  
Update: Day: <dd> Month: <mm> Year: <yyyy>
8. This line displays the cumulative time, in days, that the FRU has been powered on:  
Time Alive: <ddd> days
9. This line displays the current time, in days, since the FRU was last powered on:  
Time Awake: <ddd> days
10. This line displays the externally supplied ID (up to 10 characters):  
ID: <xxxxxxxxxx>
11. This line displays the externally supplied part number (up to 20 characters):  
Part Num: <xxxxxxxxxxxxxxxxxxxx>
12. This line displays the externally supplied serial number (up to 20 characters):  
Serial Num: <xxxxxxxxxxxxxxxxxxxx>
13. This line displays the externally supplied revision number (up to 4 characters):  
Revision Num: <xxxx>

## Operands

none



## Example

To display all FRUs for a switch:

```
switch:admin> chassisshow

SW BLADE Slot: 3
Header Version:      1
Power Consume Factor: -180
Part Num:            60-0001532-03
Serial Num:          1013456800
Manufacture:         Day: 12  Month: 6  Year: 2001
Update:              Day: 15  Month: 7  Year: 2001
Time Alive:          28 days
Time Awake:          16 days
ID:                  555-374757
Part Num:            234-294-12345
Serial Num:          2734658
Revision Num:        A.00

CP BLADE Slot: 6
Header Version:      1
Power Consume Factor: -40
Factory Part Num:    60-0001604-02
Factory Serial Num:  FP00X600128
Manufacture:         Day: 12  Month: 6  Year: 2001
Update:              Day: 15  Month: 7  Year: 2001
Time Alive:          61 days
Time Awake:          16 days
ID:                  555-374757
Part Num:            236-296-12350
Serial Num:          2836542
Revision Num:        A.00

POWER SUPPLY Unit: 2
Header Version:      1
Power Consume Factor: 1000
Part Num:            60-0001536-02to stop
Serial Num:          A013450700
Manufacture:         Day: 14  Month: 6  Year: 2001
Update:              Day: 15  Month: 7  Year: 2001
Time Alive:          50 days
Time Awake:          16 days
ID:                  555-374757
Part Num:            238-298-12360
Serial Num:          1234567

<output truncated>
```

## See Also

[slotShow](#)

## chipPropShow

Displays chip properties.

### Synopsis

```
chippropshow [slot/]chip | [--slot]number -all
```

### Availability

all users

### Description

Use this command to display the chip properties for the specified chip on the specified blade

---

**Note:** The output of this command is only for support use only.

---

### Operands

This command has the following operands:

[slot/]chip	Specify the index of the chip within the blade to be displayed. The default is set to 0 and designed to operate on fixed-port-count products.
[ [--slot]number] -all	Specify the slot number for a Core Switch 2/64 or SAN Director 2/128. For all other switches this operand is not required.

## Example

To view the chip properties on a blade:

```
switch:admin> chippropshow --slot 1 -all

Slot: 1 minis: 0 chip: 0
[1657/0001,0104,2/8]

Slot: 1 minis: 0 chip: 1
[1657/0001,0104,2/8]

Slot: 1 minis: 1 chip: 0
[1657/0001,0104,2/8]

Slot: 1 minis: 1 chip: 1
[1657/0001,0104,2/8]

Slot: 1 minis: 2 chip: 0
[1657/0001,0104,2/8]

Slot: 1 minis: 2 chip: 1
[1657/0001,0104,2/8]

Slot: 1 minis: 3 chip: 0
[1657/0001,0104,2/8]

Slot: 1 minis: 3 chip: 1
[1657/0001,0104,2/8]
```

## See Also

[ptPropShow](#)

## chipRegShow

Displays the port registers for a given chip number.

### Synopsis

```
chipregshow [slot/]chip [filter]
```

### Availability

all users

### Description

Use this command to display the ASIC pair register contents for the specified chip on the specified blade slot.

---

**Note:** The output of this command is only for support use only.

---

### Operands

This command has the following operands:

[slot/]chip	Specify the index of the chip within the specified blade to be displayed. The default is set to 0 and designed to operate on fixed-port-count products.
filter	Specify a filter string.

## Example

To display the port registers of a chip:

```
switch:admin> chipregshow 1/1 ffffffff

Port Registers for Slot: 1 port: 8

0xc9b8803c: toc_ctl      0000          0xc9b88044: ...
0xc9b8804c: flist_stat    0018037e       0xc9b88054: ...
0xc9b8805c: plist_stat    ffffffff       0xc9b88064: ...
0xc9b8806c: aulist_stat   ffffffff       0xc9b88070: ...
0xc9b8aca4: port_speed    ffffffff       0xc9b8aca8: ...
0xc9b8acb6: epi2_stat     0000          0xc9b8acc4: ...
0xc9b8accc: listB_stat    00ad0701       0xc9b8acdc: ...
0xc9b8d4c8: frzfrm_did   00ad0701       0xc9b8d4cc: ...

Port Registers for Slot: 1 port: 9

0xc9b9803c: toc_ctl      0000          0xc9b98044: ...
0xc9b9804c: flist_stat    0018037e       0xc9b98054: ...
0xc9b9805c: plist_stat    ffffffff       0xc9b98064: ...
0xc9b9806c: aulist_stat   ffffffff       0xc9b98070: ...
0xc9b9aca4: port_speed    0000          0xc9b9aca8: ...
0xc9b9acb6: epi2_stat     0000          0xc9b9acc4: ...
0xc9b9accc: listB_stat    ffffffff       0xc9b9acdc: ...
0xc9b9d4c8: frzfrm_did   00ad0301       0xc9b9d4cc: ...
<output truncated>
```

## See Also

[chipPropShow](#)

[ptRegShow](#)

## cmemRetentionTest

Tests the data retention of the central memory SRAMs.

### Synopsis

```
cmemretentiontest [--slot number][--passcnt count][--datatype  
type][--ports itemlist][--seed value]
```

### Availability

admin

### Description

Use this command to verify that data written into the central memory SRAMs in the ASIC pair is retained after a 10-second wait. The method used is to write a fill-pattern to all SRAMs, wait 10 seconds, and then read all SRAMs to verify that the data read matches the data previously written. The process is then repeated using the reverse version of the pattern.

---

**Note:** This command cannot be executed on an enabled switch. You must first disable the switch using the [switchDisable](#) command.

---

### Operands

This command has the following operands:

<code>--slot number</code>	Specify the slot number on which the diagnostic will operate. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.
<code>--passcnt count</code>	Specify the number of test passes to run. By default the test will be run one time.

-datatype type	Specify the type of data pattern to use. By default, type 9, QUAD_RAMP is used. For a complete list of supported data patterns run the <code>datatypeshow</code> command. Some common settings are:		
	Pattern	type	example
	BYTE_FILL	1	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	WORD_FILL	2	0000 0000 0000 0000 0000 0000 0000 0000
	QUAD_FILL	3	00000000 00000000 00000000 00000000
	QUAD_RAMP	9	00000000 00000001 00000002 00000003
	RANDOM	11	55 16 fc d7 17 65 a9 87 5f 44 be 5a d0 de bc a5
-ports itemlist	Specify a list of blade ports to test. The ports list is translated into a matching quad list before the test is run. By default all the blade ports in the specified slot ( <code>--slot</code> ) are tested. See the <code>itemlist</code> help pages for further details.		
-seed value	Specify the data pattern seed to be used. The default seed value is 0.		

Example

To run the data-retention test on the central memory SRAMS:

```
switch:admin> cmemretentiontest --slot3
Running cmemretentiontest .....
Test Complete: cmemretentiontest Pass 2 of 2
Duration 0 hr, 2 min & 13 sec (0:2:13:234).
passed.
```

Diagnostics

Listed here are possible error messages:

- LCMEM\_ERR
- LCMRS\_ERR
- LCMTO\_ERR

## See Also

[camTest](#)  
[centralMemoryTest](#)  
[cmiTest](#)  
[crossPortTest](#)  
[dataTypeShow](#)  
[itemList](#)  
[portLoopbackTest](#)  
[spinSilk](#)  
[sramRetentionTest](#)



## cmiTest

Verifies the Control Message Interface (CMI) bus between ASICs.

### Synopsis

```
cmitest [--slot number][-passcnt count][-txports  
list][-rxports list][-skip mask]
```

### Availability

admin

### Description

Use this command to test:

- The multiplexed 4-bit CMI point-to-point connection between two ASICs.
- The message sent with a bad checksum sets the error and interrupt bits of the destination ASIC.
- The message sent with a good checksum does not set any error or interrupt bit in any ASIC pair.

The CMI is used to send transmission requests or completion messages between the ASIC transmitter and receiver.

## Options

This command has the following options:

<code>--slot number</code>	Specify the slot number to test. The default is set to 0 and designed to operate on fixed-port-count products.
<code>-passcnt count</code>	Specify the number of test passes to run. By default the test will be run one time.
<code>-txports list</code>	Specify a list of ports to transmit data. By default all the ports in the specified slot ( <code>--slot number</code> ) will be used. See <a href="#">itemList</a> help pages for further details.
<code>-rxports list</code>	Specify a list of ports to receive data. By default all the ports in the specified slot ( <code>--slot number</code> ) will be used. See <a href="#">itemList</a> help pages for further details.
<code>-skip mask</code>	<p>Specify the particular test by using the following bit weight data:</p> <ul style="list-style-type: none"><li>1 CMI data test (ignore checksum)</li><li>2 CMI checksum test</li><li>3 Enable all tests</li></ul> <p>This operand is optional.</p>

## Example

To run a CMI test between two ASIC pairs:

```
switch:admin> cmitest -txports 3/0-3/7 -rxports 3/8-3/15
Running cmitest .....
Test Complete: cmitest Pass 1 of 1
Duration 0 hr, 0 min & 2 sec (0:0:2:591).
passed.
```

## Diagnostics

Listed below are possible error messages if failures are detected:

```
DIAG-BADINT
DIAG-CMICKSUM
DIAG-CMIDATA
DIAG-CMIINVCAP
DIAG-CMINOCAP
DIAG-CMISA1
DIAG-INTNIL
```

**See Also**

[camTest](#)

[centralMemoryTest](#)

[cmemRetentionTest](#)

[crossPortTest](#)

[dataTypeShow](#)

[itemList](#)

[portLoopbackTest](#)

[spinSilk](#)

[sramRetentionTest](#)

## configDefault

Resets a subset of configuration settings to their defaults.

### Synopsis

```
configDefault
```

### Availability

admin

### Description

Use this command to reset a subset of configuration settings to the default values. All configuration parameters, with the following exceptions, are reset:

- Ethernet MAC address, IP address, and subnetmask
- IP gateway address
- License keys
- OEM customization
- SNMP configuration
- System name
- World Wide Name
- HP Advanced Zoning configuration

Some configuration parameters are cached by the system. To avoid unexpected switch behavior, reboot the system after executing this command.

---

**Note:** See the [configure](#) command for more information on default values for configuration parameters.

This command cannot be executed on an enabled switch. You must first disable the switch using the [switchDisable](#) command.

---

### Operands

none

## Example

To restore the system configuration to default values:

```
switch:admin> configDefault  
Committing Configuration ...done.
```

## See Also

[agtCfgDefault](#)

[configure](#)

[switchDisable](#)

[switchEnable](#)

## configDownload

Downloads a switch configuration file from a host system.

### Synopsis

```
configDownload ["host", "user", "file", "passwd"]
```

### Availability

admin

### Description

Use this command to download a switch configuration file from a host system. The configuration file is ASCII text and might have been generated using [configUpload](#), or it might have been created by a user to download specific configuration changes. The download process uses FTP.

---

**Note:** Fabric OS v4.x only supports FTP. In Fabric OS v4.x, no spaces are allowed between operands.

---

To restore the configuration file from a Windows NT system using FTP, the FTP server might have to be installed from the distribution media and enabled.

This command can be invoked without any operands, creating an interactive session.

The download process is additive; that is, the lines read from the file are added to the current switch configuration. This enables you to change a single configuration variable by downloading a file with a single line. All other variables remain unchanged. This is particularly important when downloading a zoning configuration. Since the new zoning information is added to the current configuration, there might not be any conflicts. Typically, this command is used to add a consistent change to the current zoning configuration or to replace the current zoning configuration, in which case [cfgClear](#) must be invoked before downloads a switch configuration file from a host system.

When the switch is in secure mode, the following rules and restrictions apply:

- Both Defined Security policies and Active Security policies sections must exist and contain the FCS\_POLICY.

- In the defined security policies section, at least one member of the FCS\_POLICY must be the same as a member in the previous FCS\_POLICY.
- In the active security policy section, the FCS\_POLICY must be exactly the same as the previous FCS\_POLICY.
- Order of members must be maintained.
- If either security policies section has a RSNMP\_POLICY, then that section must have a WSNMP\_POLICY.
- After the switch is enabled, if the switch is the primary FCS, then its security and zoning information will be propagated to all other switches in the fabric.
- After the switch is enabled, if the switch is a nonFCS or a backup FCS, then its security and zoning information will be overwritten by the primary FCS.

---

**Note:** A license key is only accepted if the boot.mac line matches the World Wide Name of the switch performing the download; otherwise, it is ignored. A switch's identity cannot be changed by [configDownload](#). These parameters (such as the switch name and IP address) are ignored.

---

If the configuration file contains the keyword "enable: <zone\_configuration>", then that zoning configuration enables in the fabric. If there is no "enable" keyword in the configuration file or no zoning configuration by that name exists, or if enable fails for any reason (such as dangling aliases), then:

- The effective configuration remains as it was prior to [configDownload](#); that is, all the "enable" information is discarded.
- The defined configuration changes to reflect new zoning configuration.

## Operands

This command has the following operands:

host	Specify a host name or IP address in quotation marks; for example, "citadel" or "192.168.1.48." The configuration file is downloaded from this host system.
user	Specify a user name in quotation marks; for example, "jdoe." This user name is used to gain access to the host system.

file	Specify a file name in quotation marks; for example, " <i>config.txt</i> ." Absolute path names may be specified using forward slash (/). Relative path names search for the file in the user's home directory on UNIX® hosts, and in the directory where the FTP server is running on Windows® hosts.
passwd	Specify a password in quotation marks.

## Examples

To load a backup configuration file from a host system:

```
switch:admin> configdownload "123.123.123.123", "jdoe", "config.txt",  
"password1"  
Committing configuration...done.  
download complete
```

If you enter the command with no operands, you are prompted for the appropriate values: I

```
switch:admin> configdownload  
Server Name or IP Address [host]: 123.123.123.123  
User Name [None]: user21  
File Name [config.txt]: config-switch.txt  
Password: xxxxxxxxxx  
download complete
```

## Diagnostics

Listed here are possible reasons for failure of this command:

- The host name is not known to the switch.
- The host IP address cannot be contacted.
- The user does not have permission on the host.
- The user runs a script that prints something at login.
- The file does not exist on the host.
- The file is not a switch configuration file.
- The FTP server is not running on the host.
- The configuration data contains errors.



**See Also**[configDefault](#)[configShow](#)[configUpload](#)[configure](#)

## configShow

Displays system configuration settings.

### Synopsis

```
configShow ["filter"]
```

### Availability

all users

### Description

Use this command to view the system configuration settings set by the [configure](#) command.

### Operands

This command has the following operand:

<code>filter</code>	Specify a text string in quotation marks that limits the output of the command to only those entries that contain the text string. This operand is optional.
---------------------	--

## Example

To display system configuration settings:

```
switch:admin> configshow
diag.postDisable:      0
fabric.domain:         1
fabric.ops.BBCredit:    16
fabric.ops.E_D_TOV:     2000
fabric.ops.R_A_TOV:     10000
fabric.ops.dataFieldSize: 2112
fabric.ops.mode.fcpProbeDisable: 0
fabric.ops.mode.isolate: 0
fabric.ops.mode.tachyonCompat: 0
fabric.ops.mode.unicastOnly 0
fabric.ops.mode.useCsCtl : 0
fabric.ops.mode.vcEncode : 0
fabric.ops.vc.class.2: 2
fabric.ops.vc.class.3: 3
fabric.ops.vc.config: 0xc0
fabric.ops.vc.linkCtrl: 0
fabric.ops.vc.multicast: 7
fabric.fcIP.address : 192.168.65.62
fabric.fcIP.mask : 255.255.255.0
lcdContrast: 128
licenseKey none
rpc.rstated 1
rpc.rusersd 1
```

---

**Note:** Configuration parameters vary, depending on system model and configuration.

---

## See Also

[agtCfgShow](#)  
[configure](#)  
[diagDisablePost](#)  
[diagEnablePost](#)  
[ipAddrShow](#)  
[licenseIdShow](#)  
[syslogDIpShow](#)

## configUpload

Creates a backup file of switch configuration information on a host workstation.

### Synopsis

```
configUpload ["host", "user", "file" [, "passwd"]]
```

### Availability

admin

### Description

Use this command to upload the switch configuration to a host file. The upload process uses FTP.

If the command is entered without operands, it becomes interactive and prompts the user for input.

The configuration file is written as three sections. The first section contains the switch boot parameters. It has variables such as the switch's name and IP address. This section corresponds to the first few lines of output of the [configShow](#) command.

The second section contains general switch configuration variables, such as diagnostic settings, fabric configuration settings, and SNMP settings. This section corresponds to the output of the [configShow](#) command (after the first few lines), although there are more lines uploaded than shown by the command.

The third sections contains zoning configuration parameters.

---

**Note:** In Fabric OS v4.x, no spaces are allowed between operands. None of the operands, host, user, file name, or password can use the double quote character (").

---

### Operands

This command has the following optional operands:

host	Specify a host name or IP address in quotation marks; for example, "citadel" or "192.168.1.48." The configuration file is downloaded from this host system.
------	---

user	Specify a user name in quotation marks; for example, "jdoe." This user name is used to gain access to the host.
file	Specify a file name in quotation marks; for example, " <i>config.txt</i> ." Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts.
passwd	Specify a password in quotation marks. T

## Examples

To create a backup file of switch configuration information:

```
switch:admin> configupload "123.123.123.123","jdoe","config.txt","password1"
upload complete
```

If you enter the command with no operands, you are prompted for the appropriate values:

```
switch:admin> configUpload
Server Name or IP Address [host]: 123.123.123.123
User Name [None]: user21
File Name [config.txt]: config-switch.txt
Password: xxxxxx
upload complete
```

## Diagnostics

Listed here are possible reasons for failure of this command:

- The host name is not known to the switch.
- The host IP address cannot be contacted.
- The user does not have permission on the host.
- The user runs a script that prints something at login.
- The FTP server is not running on the host.

## See Also

[configDefault](#)  
[configDownload](#)  
[configShow](#)  
[configure](#)

## configure

Modifies system configuration parameters.

### Synopsis

configure

### Availability

admin

### Description

Use this command to change the following system configuration parameters:

- Fabric parameters
- Virtual channel settings
- Zoning operation parameters
- RSCN transmission mode
- NS prezoning mode
- Arbitrated loop parameters
- System services
- Portlog events enable

---

**Note:** This command can now be executed on an enabled switch; however, if executed on an enabled switch, only a subset of the full parameter set is available. To access all parameters controlled by this command, you must disable the switch.

---

The [configure](#) command is navigated using a series of menus. Top-level and associated submenus consist of a text prompt, a list of acceptable values, and a default value (in brackets).

Use the following options to control input:

Return	When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.
--------	---

Interrupt (Ctrl-C)	Aborts the command immediately and ignores all changes made. This keystroke is common on many computers, but can be different on your system.
End-of-file (Ctrl-D)	When entered at a prompt with no preceding input, terminates the command and saves changes made. This keystroke is common on many computers, but may be different on your system.

## Fabric Parameters

There are several settings that control the overall behavior and operation of the fabric. Some of these, such as the domain, are assigned automatically by the fabric and might differ from one switch to another in the fabric. Other parameters, such as the BB credit, can be changed for specific applications or operating environments but *must* be in agreement among all switches to allow formation of the fabric.

The fabric parameters are as follows

**Table 2: Configure Command Fabric Parameters**

Field	Default	Range
Domain	1	1..239
R_A_TOV	10000	4000..120000
E_D_TOV	2000	1000 to 5000
Data Field Size	2112	256 to 2112
Sequence Level Switching	0	0 or 1
Disable Device Probing	0	0 or 1
Suppress Class F Traffic	0	0 or 1
Sync IO Mode	0	0 or 1
VC Encoded Address Mode	0	0 or 1
Per-frame Route Priority	0	0 or 1
Long Distance Fabric	0	0 or 1
BB Credit	16	1 to 16
Insistent Domain ID Modes	yes	yes or no

Descriptions of the switch fabric setting fields are as follows:

Domain	The domain number uniquely identifies the switch in a fabric. This value is automatically assigned by the fabric. The range of valid values varies depending on the switch model and other system parameter settings.
R_A_TOV	<p>The Resource Allocation Time Out Value (R_A_TOV) is displayed in milliseconds. This variable works with the variable E_D_TOV to determine switch actions when presented with an error condition.</p> <p>Allocated circuit resources with detected errors are not released until the time value has expired. If the condition is resolved prior to the time out, the internal time out clock resets and waits for the next error condition.</p>
E_D_TOV	Error Detect Time Out Value (E_D_TOV) is displayed in milliseconds. This timer is used to flag a potential error condition when an expected response is not received (an acknowledgment or reply in response to packet receipt, for example) within the set time limit. If the time for an expected response exceeds the set value, then an error condition occurs.
Data Field Size	The data field size specifies the largest possible value, in bytes, and advertises this value to other switches in the fabric during construction of the fabric as well as to other devices when they connect to the fabric. Setting this to a value smaller than 2112 may result in decreased performance.
Sequence Level Switching	<p>When Sequence Level Switching is set to 1, frames of the same sequence from a particular source are transmitted as a group. When this feature is set to 0, frames are transmitted interleaved among multiple sequences.</p> <p>Under normal conditions, Sequence Level Switching should be disabled for better performance. However, some host adapters have performance issues when receiving interleaved frames from multiple sequences. When there are such devices attached to the fabric, Sequence Level Switching should be enabled.</p>
Disable Device Probing	When Disable Device Probing is set to 1, devices that do not register with the Name Server are not present in the Name Server data base. Set this mode only if the switch N_Port discovery process (PLOGI, PRLI, INQUIRY) causes an attached device to fail.



Disable RLS Probing	When RLS Probing is not selected (enabled or "0"), the switch port will issue RLS Extended Link Service to the attached devices every four seconds to collect link status data. Otherwise, RLS will not be sent to the devices. RLS Probing is selected by default (disabled or "1").
Suppress Class F Traffic	When this mode is set to 1, all class F interswitch frames are transmitted as class 2 frames. This is to support remote fabrics which involve ATM gateways which don't support class F traffic.
VC Encoded Address Mode	When VC Encoded Address Mode is set to 1, frame source and destination address utilize an address format compatible with hp StorageWorks switches. Set this mode only if the fabric includes this type of switch. This mode cannot be set if security mode is enabled. Likewise, security mode cannot be enabled if VC encoding address mode is enabled. Use the <a href="#">secModeShow</a> command to view the security mode.
Per-frame Route Priority	In addition to the eight virtual channels used in frame routing priority, support is also available for per-frame based prioritization when this value is set. When Per-frame Route Priority is set to 1, the virtual channel ID is used in conjunction with a frame header to form the final virtual channel ID.
Long Distance Fabric	When this mode is set to 1, ISLs in a fabric can be up to 100km long. The exact distance level is determined by the per-port configuration on the E_Ports of each ISL. Both E_Ports in an ISL must be configured to run the same long distance level, otherwise, the fabric will be segmented. The Extended Fabric License is required to set this mode.
BB Credit	The buffer-to-buffer (BB) credit represents the number of buffers available to attached devices for frame receipt. The range of allowed values varies depending on other system settings.
Insistent Domain ID mode	This mode enables a flag for the domain ID, so that the current domain setting for the switch is insistent: that is, remains the same over switch reboots, power cycles, CP failovers, firmware downloads, and fabric reconfigurations. If a switch does not get the selected insistent domain ID during a fabric reconfiguration, it segments itself out of the fabric.0

**Fabric.ididmode** If you do not have security use this mode to assure what switch will become the master switch and determine what configuration is run. This parameter is called **fabric.ididmode** in the **configure** command and in the **Configshow** command. Domain port zoning requires that Domain numbers are persistent.

When VC encoded address mode is set to 1, frame source and destination addresses utilize an address format compatible with Fibre Channel Storage Switch 8 and Fibre Channel Storage Switch 16 switches. Set this mode only if the fabric includes this type of switch. This mode cannot be set if security mode is enabled. Likewise, security mode cannot be enabled if VC encoding address mode is enabled. Use the [secModeShow](#) command to view the security mode.

In addition to the eight virtual channels used in frame routing priority, support is also available for per-frame-based prioritization when this value is set. When Per-frame Route Priority is set to 1, the virtual channel ID is used in conjunction with a frame header to form the final virtual channel ID.

## Virtual Channel Settings

The switch enables fine-tuning for a specific application by configuring the parameters for eight virtual channels. The first two virtual channels are reserved for switch internal functions and are not available for modification.

The default virtual channel settings have already been optimized for switch performance. Changing the default values can improve switch performance but can also degrade performance. Do not change these settings without fully understanding the effects of the changes.

The Virtual Channel Setting fields are as follows:

**Table 3: Configure Command Virtual Channel Settings**

Field	Default	Range
VC Priority 2	2	2 to 3
VC Priority 3	2	2 to 3
VC Priority 4	2	2 to 3
VC Priority 5	2	2 to 3
VC Priority 6	3	2 to 3
VC Priority 7	3	2 to 3

VC Priority specifies the class of frame traffic given priority for a virtual channel.

## Zoning Operation Parameters

The Zoning Operation Parameter field is as follows:

Disable NodeName Zone Checking	Specify 1 to disable using Node WWN when specifying nodes in the zone database, or specify 0 to enable using Node WWN when specifying nodes in the zone data. The default value is 0. This value must be set to 1 for interoperability
--------------------------------	--

## RSCN Transmission Mode

The RSCN Transmission Mode field is as follows:

End-device RSCN Transmission Mode	Specify 0 for RSCN with single PID, 1 for RSCN with multiple PIDs, or 2 fabric RSCN. The default value is 0.
-----------------------------------	--

## NS Operation Parameters

The NS Pre-zoning Mode field is as follows:

Pre-zoned Responses Mode	Specify 0 for Standard Mode, or 1 for Pre-zoning On. The default value is 0.
--------------------------	--

## Arbitrated Loop Parameters

The Arbitrated Loop Setting fields are as follows:

**Table 4: Configure Command Arbitrated Loop Settings**

Field	Default	Range
Alternate BB Credit?	0	0 or 1
Send FAN frames?	1	0 or 1
Enable CLOSE on OPEN received?	4	0 through 4
Always send RSCN?	1	0 or 1
Do Not Allow AL_PA 0x00?	0	0 or 1

Descriptions of the Arbitrated Loop Parameter fields are as follows:

Send FAN frames?	Specifies that fabric address notification (FAN) frames be sent to public loop devices to notify them of their node ID and address. When set to 1, frames are sent; when set to 0, frames are not sent.
Enable CLOSE on OPEN received?	If this is set, a CLS is returned immediately to an OPN if no buffers are available. This is required for TachLite.
Always send RSCN?	Following the completion of loop initialization, a remote state change notification (RSCN) is issued when FL_Ports detect the presence of new devices or the absence of pre-existing devices. When set, a RSCN is issued upon completion of loop initialization, regardless of the presence or absence of new or preexisting devices.
Do Not Allow AL_PA 0x00?	This option disallows AL_PA values from being 0.

## System Services

The System Services fields are as follows:

**Table 5: Configure Command System Services Parameters**

Field	Default	Range
rstatd	Off	On/Off
rusersd	Off	On/Off
telnetd	On	On/Off
thad	On	On/Off
Disable RLS probing	On	On/Off

Descriptions of the system service (setting) fields are as follows:

rstatd	<p>Dynamically enables or disables a server that returns system operation information through remote procedure calls (RPC). The protocol provides for a wide-range of system statistics.</p> <p>The retrieval of this information is supported by a number of operating systems that support RPC. Most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) use the rup and rsysinfo commands to retrieve the information. See your local system documentation for the appropriate usage of the these or equivalent commands.</p>
--------	---

rusersd	<p>Dynamically enables or disables a server that returns information about the user logged into the system through remote procedure calls (RPC). The information returned includes user login name, the system name, login protocol or type, login time, idle time, and remote login location (if applicable).</p> <p>The retrieval of this information is supported by a number of operating systems which support RPC. On most UNIX-based systems (HP-UX, Irix, Linux, Solaris, etc.) the command to retrieve the information is rusers. See your local system documentation for the appropriate usage of this or equivalent command.</p>
telnetd	Used to enable or disable the telnet interface to a switch, including sectelnet. If you are using SSH to manage a switch you can disable the telnet interface for greater security. The default value is on (telnet is enabled).
thad	Dynamically enables or disables the threshold monitor. The default value is on.
Disable RLS probing	This disables Read Link Error Status probing of the AL_PAs. The default value is on, that is Disable RLS probing is disabled.

## Portlog Events Enable

Use these parameters to specify which events create an entry in the port log. The Portlog Events fields are as follows:

**Table 6: Configure Command Portlog Events Parameters**

Field	Default	Range
start: a switch start or re-start event	On	On/Off
disable: a port is disabled	On	On/Off
enable: a port is enabled	On	On/Off
ioctl: a port I/O control is executed	On	On/Off
Tx: a frame is transmitted	On	On/Off
Tx1: a frame is transmitted, class 1	On	On/Off
Tx2: a frame is transmitted, class 2	On	On/Off
Tx3: a frame is transmitted, class 3	On	On/Off
Rx: a frame is received	On	On/Off

**Table 6: Configure Command Portlog Events Parameters (Continued)**

Field	Default	Range
Rx1: a frame is received, class 1	On	On/Off
Rx2: a frame is received, class 2	On	On/Off
Rx3: a frame is received, class 3	On	On/Off
stats: port status or statistics	On	On/Off
scn: a state change notification	On	On/Off
pstate: a port changes physical state	On	On/Off
reject: a received frame is rejected	On	On/Off
busy: a received frame is busied	On	On/Off
ctin: a CT based request is received	On	On/Off
clout: a CT based response is transmitted	On	On/Off
errlog: a message is added to the error log	On	On/Off
loopsn: a loop state change notification	On	On/Off
create: a task is created	On	On/Off
debug: generic debug info	On	On/Off
nbrfsm: neighbor state transition	On	On/Off
timer: timer	On	On/Off
sn: speed negotiation state	On	On/Off
fcin: Fibre Channel input	On	On/Off
fcout: Fibre Channel output	On	On/Off
read: Fibre Channel read	On	On/Off
write: Fibre Channel write	On	On/Off
err: Fibre Channel error	On	On/Off
frame: Fibre Channel frame payload	On	On/Off
msRemQ: inter-sw MS query	On	On/Off
msRemR: inter-sw MS response	On	On/Off
nsRemQ: inter-sw NS query	On	On/Off
nsRemR: inter-sw NS response	On	On/Off
rscn: RSCN	On	On/Off
state: Fibre Channel state	On	On/Off

**Table 6: Configure Command Portlog Events Parameters (Continued)**

Field	Default	Range
xalloc: alloc an exchange	On	On/Off
xfree: free an exchange	On	On/Off
xerr: exchange error	On	On/Off
xstate: exchange state	On	On/Off
seq: sequence	On	On/Off
seqst: sequence state	On	On/Off
iu: iu	On	On/Off
payload: frame payload	On	On/Off
reconf: fabric reconfiguration	On	On/Off
zone: zone request/response	On	On/Off
cmd: fss command log	On	On/Off
event fss event log	On	On/Off
msg: fss message log	On	On/Off
switch: switch driver logs	On	On/Off
ficonq: ficon queue and ELS measurement	On	On/Off

---

**Note:** Although referenced in this guide, HP does not support FICON at this time.

---

## Operands

none

## Example

To set the configuration parameters for a switch:

```
switch:admin> configure
Configure...

Fabric parameters (yes, y, no, n): [no] yes

  Domain: (1..239) [1] 5
  R_A_TOV: (4000..120000) [10000]
  E_D_TOV: (1000..5000) [2000]
  Data field size: (256..2112) [2112]
  Sequence Level Switching: (0..1) [0]
  Disable Device Probing: (0..1) [0]
  Suppress Class F Traffic: (0..1) [0] 1
  VC Encoded Address Mode: (0..1) [0] 1
  Per-frame Route Priority: (0..1) [0]
  Long Distance Fabric: (0..1) [0]
  BB credit: (1..16) [16]
Insistent Domain ID Mode (yes, y, no, n): [yes]
Virtual Channel parameters (yes, y, no, n): [no] yes

  VC Priority 2: (2..3) [2]
  VC Priority 3: (2..3) [2]
  VC Priority 4: (2..3) [2]
  VC Priority 5: (2..3) [2]
  VC Priority 6: (2..3) [3]
  VC Priority 7: (2..3) [3]

Switch Operating Mode (yes, y, no, n): [no]
Zoning Operation parameters (yes, y, no, n): [no]
RSCN Transmission Mode (yes, y, no, n): [no]
Arbitrated Loop parameters (yes, y, no, n): [no]
System services (yes, y, no, n): [no]
Portlog events enable (yes, y, no, n): [no]
Committing configuration...done.
```

## See Also

[configDefault](#)

[cfgShow](#)

[ipAddrSet](#)



## crossPortTest

Tests functional operation of port external transmit and receive path.

### Synopsis

```
crossporttest [-nframes count] [-lb_mode  
mode] [-spd_mode mode] [-norestore mode] [-ports  
itemlist]
```

### Availability

admin

### Description

This command verifies the intended functional operation of the switch by sending frames from port M's transmitter and looping them back through an external fiber cable into port N's receiver, thus exercising all the switch components, from the main board, to the media, to the fiber cable, to the media, and back to the main board. With `-lb_mode` set to 1, it is also possible to test ports with loopback plugs that connect each port back to itself.

The cables can be connected to any port combination with the one condition; the cables and media connected must be of the same technology. This means a short wave-length media port must be connected to another short wave-length media port, using a short wave-length cable, a long wave-length port must be connected to a long wave-length port, and a copper port must be connected to a copper port.

For best coverage, connected ports should be from different ASICs. For example, Ports 0 through 3 belong to ASIC 0, ports 4 through 7 belong to ASIC 1, and so forth. A connection from port 0 to port 15 exercises the transmit path between ASICs. A connection from port 0 to port 3 tests only the internal transmit path in ASIC 0.

Only one frame is transmitted and received at any one time. The port LEDs flicker green while the test is running.

The test method is as follows:

1. Determine which ports are connected to each other.
2. Enable ports for cabled loopback mode.
3. Create a Frame F of maximum data size (2112 bytes).

4. Transmit Frame F through Port M.
5. Pick up the frame from its cross-connected Port N. An error is reported if any port other than N actually received the frame.
6. Check if any of the eight statistic error counters are nonzero: ENC\_in, CRC\_err, TruncFrm, FrmTooLong, BadEOF, Enc\_out, BadOrdSet, or DiscC3.
7. Check if the transmit, receive, or Class 3 receiver counters are stuck at some value.
8. Check if the number of frames transmitted is not equal to the number of frames received.
9. Repeat steps 3 through 8 for all ports present until the number of frames requested is reached or all ports are marked bad.

At each pass, a different data type is used to create the frame from a palette of seven types meaning that if a pass of seven is requested, seven different frames are used in the test. If eight passes, the first seven frames are unique, and the eighth is the same as the first. The data palette of seven are:

CSPAT:	0x7e, 0x7e, 0x7e, 0x7e, ...
BYTE_LFSR:	0x69, 0x01, 0x02, 0x05, ...
CHALF_SQ:	0x4a, 0x4a, 0x4a, 0x4a, ...
QUAD_NOT:	0x00, 0xff, 0x00, 0xff, ...
CQTR_SQ:	0x78, 0x78, 0x78, 0x78, ...
CRPAT:	0xbc, 0xbc, 0x23, 0x47, ...
RANDOM:	0x25, 0x7f, 0x6e, 0x9a, ...

The [crossPortTest](#) command behaves differently depending on the modes activated.

## SwitchEnable or SwitchDisable Mode

### Online Mode

In online mode (in which the switch is enabled prior to executing the [crossPortTest](#) command), only ports that are cable loopbacked to ports in the same switch are tested. Ports connected outside of the switch are ignored.

To run the [crossPortTest](#) command successfully the test must find at least one port (`lb_mode = 1`, this is the default) or two ports (`lb_mode = 0`) cable loopbacked to each other. If this criteria is not met, one of the following message is displayed:

```
Need at least 1 port(s) connected to run this test.
```

```
Need at least 2 port(s) cross-connected to run this test.
```

### Offline Mode

In offline mode (when the switch is disabled prior to executing the [crossPortTest](#) command) all ports are assumed to be cable loopbacked to different ports in the same switch. If one or more ports are not connected, the test aborts.

The test determines which port is connected to which port transmitting frames. If any ports are not properly connected (improperly seated SFPs or cables, bad SFPs or cables, or improper connection or improper connection of SWL to LWL), the following message is displayed:

```
One or more ports is not active, please double check  
fibre channel connections on all ports.
```

Since this test includes the media and the fiber cable in its test path, its results combined with the results of [portLoopbackTest](#) and [spinSilk](#) can be used to determine which components of the switch are faulty. It is also possible to use loopback modes 3 and 5 to further isolate failures; see `-lb_mode`, below.

## Operands

This command has the following operands:

<code>-nframes count</code>	Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10.
<code>-lb_mode mode</code>	Select the loopback point for the test. By default, <code>crossporttest</code> uses mode 1 loopback. Valid values are: <ol style="list-style-type: none"><li>0 Cable Loopback.</li><li>1 Port Loopback (loopback plugs).</li><li>2 External (series) loopback.</li><li>3 Silkscreen loopback.</li><li>4 Serial link wrapback.</li><li>5 Internal (parallel) loopback.</li></ol>

<code>-spd_mode mode</code>	<p>Select the speed mode for the test. This parameter is only used for 2-Gb/s based products, where it controls the speed at which each port is operated. For 1-Gb/s only products it is ignored. The exact operation of modes 3–6 depends upon the loopback mode selected. When speed modes 3–6 are used with cables, they must be connected even to odd or the test will fail. Valid values are:</p> <ul style="list-style-type: none"><li>0 - Run test at both Gbit/sec and 2 Gbit/sec</li><li>1 - Lock all port speeds to 1 Gbit/sec</li><li>2 - Lock all port speeds to 2 Gbit/sec</li></ul> <p>For <code>-lb_mode</code> set to 0 or 1, one of the following speed modes is available to test the speed negotiation:</p> <ul style="list-style-type: none"><li>3 - Set all even ports speed to AN; set all odd ports to 2 Gbit/sec</li><li>4 - Set all even ports speed to AN; set all odd ports speed to 2 Gbit/sec</li><li>5 -Set all odd ports speed to AN; set all even ports to 1 Gbit/sec</li><li>6 - Set all odd ports speed to AN; set all even ports speed to 2 Gbit/sec</li></ul> <p>For <code>-lb_mode</code> set 2 or 3, the following speed modes are available to test FIFO underrun:</p> <ul style="list-style-type: none"><li>3,5 -Set all even ports speed to 2 Gbit/sec; set all odd ports speed to 1 Gbit/sec</li><li>4,6 -Set all even ports speed to 1 Gbit/sec; set all odd por speed to 2 Gbit/sec</li></ul>
<code>-norestore mode</code>	<p>Specify 1 to force the test to skip part of the post-test cleanup normally performed. This may be helpful during debug. This parameter should normally be left at the default value of 0.</p>
<code>-ports itemlist</code>	<p>Specify a list of user ports to test. By default all of the user ports in the current switch. See to <a href="#">itemList</a> for more information.</p>

## Example

To run a functional test of all the ports on a switch:

```
switch:admin> crossporttest -ports 1/0-1/15

Running Cross Port Test .....

Ports Segmented (0)
Executing test ...
Test Complete: "crossporttest" Pass 10 of 10
Duration 0 hr, 0 min & 8 sec (0:0:8:725)
Passed.
```

## Diagnostics

Possible error messages if failures are detected:

```
DATA
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
INIT
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
```

RXQ\_RAM\_PERR  
STATS  
STATS\_C3FRX  
STATS\_FRX  
STATS\_FTX  
TIMEOUT  
XMIT

## See Also

[camTest](#)

[centralMemoryTest](#)

[cmemRetentionTest](#)

[cmiTest](#)

[itemList](#)

[portLoopbackTest](#)

[portRegTest](#)

[spinSilk](#)

[sramRetentionTest](#)

## dataTypeShow

Displays sample data stream types used in some diagnostic commands.

### Synopsis

```
dataTypeShow [-seed value]
```

### Availability

all users

### Description

Use this command to display sample data stream types used in diagnostic commands. There are 20 different sample data types. The command displays an example of each data stream.

### Operands

This command has the following operand:

<code>-seed value</code>	Specify the data pattern seed value. If no seed is specified, then a seed value of 0 is used.
--------------------------	---

## Example

To display sample data streams you can use with diagnostics:

```
switch:admin> datatypeshow
```

Pattern	type	example
Byte Fill	1	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Word Fill	2	0000 0000 0000 0000 0000 0000 0000 0000
Quad Fill	3	00000000 00000000 00000000 00000000
Byte Not	4	00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff
Word Not	5	0000 ffff 0000 ffff 0000 ffff 0000 ffff
Quad Not	6	00000000 ffffffff 00000000 ffffffff
Byte Ramp	7	00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
Word Ramp	8	0000 0001 0002 0003 0004 0005 0006 0007
Quad Ramp	9	00000000 00000001 00000002 00000003
Byte LFSR	10	69 01 02 05 0b 17 2f 5e bd 7b f6 ec d8 b0 60 c0
Random	11	62 39 29 18 08 01 e8 d9 c9 ba aa 9b 8b 84 94 a5
CRPAT	12	bc bc 23 47 6b 8f b3 d7 fb 14 36 59 bc bc 23 47
CSPAT	13	7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e
CHALF_SQ	14	4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a 4a
CQTR_SQ	15	78 78 78 78 78 78 78 78 78 78 78 78 78 78 78 78
RDRAM_PAT	16	ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00 ff 00
jCRPAT	17	be d7 23 47 6b 8f b3 14 5e fb 35 59 be d7 23 47
jCJTPAT	18	7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e 7e
jCSPAT	19	7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f 7f
Pred_Rand	20	00000000 11111111 22222222 33333333

```
switch:admin>
```



## date

Displays or sets the switch date and time.

### Synopsis

```
date [ "newDate" ]
```

### Availability

all users (display)

admin (set)

### Description

Use this command to set the date and time for a switch (unless security mode is enabled). All switches maintain the current date and time in nonvolatile memory. If the security feature (secure mode) is not enabled, switch operation does not depend on the date and time. A switch with incorrect date values continues to function properly. The date and time are only used to record events in the various logs: for example, the error log and the port log.

To enable secure mode the fabric must be synchronized. Every switch in the fabric must receive a fabric timestamp from the primary FCS switch.

Use this command with no operands to display the local switch date and time. Specify an operand to set the date and time.

This command sets a common date and time for the entire fabric. If secure mode is not enabled, a change in date or time to one switch is forwarded to the principal switch and distributed to the fabric. If secure mode is enabled, date or time changes can be made only on the primary FCS switch and distributed to the fabric.

---

**Note:** This command becomes read-only if external NTP synchronization is enabled. See [tsClockServer](#) for more information.

---

It might take up to 64 seconds for the switches in the fabric to be synchronized.

The date specified is always the local switch time, taking into account daylight saving time and the time zone setup of the switch. Each switch takes care of converting the GMT time distributed fabric-wide to its local time.

The date and time are specified in the following format, as used on many UNIX systems:

mmddHHMMyy

where:

mm is the month, 01–12

dd is the date, 01–31

HH is the hour, 00–23

MM is minutes, 00–59

yy is the year, 00–99

Year values greater than 69 are taken to indicate 1970–1999; year values less than 70 are taken to indicate 2000–2069.

## Operands

This command has the following operand:

newDate	Specify the new date and time in quotation marks. This operand is optional.
---------	---

## Example

To display the current date and time and then modify it:

```
switch:admin> date
Fri Jan 29 17:01:48 UTC 2000
switch:admin> date "0227123003"
Thu Feb 27 12:30:00 UTC 2003
```

## See Also

[portLoginShow](#)

[tsClockServer](#)

[tsTimeZone](#)

[upTime](#)

## dbgshow

Displays current values of debug and verbosity levels of the specified module.

### Synopsis

`dbgshow module_name`

### Availability

all users

### Description

Use this command to display the current values of debug and verbosity levels of the specified module. If no module name is specified, displays debug and verbosity levels of all modules.

### Operands

This command has the following operands:

<code>module_name</code>	Specify the name of the module where you want to view the debug and verbosity levels. Module names are case sensitive. This operand is optional.
--------------------------	--

### Example

To display information about a specific module named NS:

```
switch:admin> dbgshow NS
Module NS,   debug level = 1, verbose level = 1
```

### See Also

[setDbg](#)

## diagClearError

Clears the diagnostics failure status.

### Synopsis

```
diagclearerror [[-slot] number] -all
```

### Availability

admin

### Description

Use this command to clear the diagnostics failure status.

### Operands

This command has the following operand:

<code>[-slot] <i>number</i></code>	Specify the slot to clear the diagnostic failure status. The default is set to 0 and designed to operate on fixed-port-count products.
<code>-switch <i>switch</i></code>	Specify the logical switch number to operate on. If omitted, all blades will be cleared. This operand is optional.
<code>-all</code>	If specified, all blades will be cleared.

If no operand is specified, the default is to clear all bad port flags.

### Example

To clear the diag software flag:

```
switch:admin> > diagclearerror 1
0x1bcb (fabos): Switch: 0, Error DIAG-CLEARERR, 3,
Pt5 S11 Ch0 Qd1 Diagnostics Error Cleared
Err# 0120041 0105
```

## diagCommandShow

Displays diagnostic command descriptions.

### Synopsis

```
diagCommandShow [command]
```

### Availability

all users

### Description

Use this command to display a short description of a diagnostic command.

---

**Note:** This command might be removed in the future releases. Use [diagHelp](#) to look up diagnostic command help pages.

---

### Options

This command has the following options:

<code>command</code>	Specify a command name to display more detailed information.
----------------------	--

## Example

To display a list of diagnostic commands with descriptions:

```
switch:admin> diagcommandshow
backplanetest - backplane connection test for multi-blade system
backport - test for back-end ASIC pair to ASIC pair links
bladediag - run a suit of diagnostic tests on a switch blade
switchdiag - run a suit of diagnostic tests on a switch blade
bladediagshort - run a suit of diagnostic tests on a switch blade
bladepropshow - display blade properties
burninlevel - set the diagnostics burnin level
burninstatus - display the diagnostics burnin status
camtest - verify QuickLoop's Content Addressable Memory (CAM) SID translation
centralmemorytest - test ASIC central memory operation
chippropshow - display chip properties
chipregshow - display contents of port registers
cmemretentiontest - data retention test of the central memory SRAMs
cmittest - verify CMI bus between ASICs
crossporttest - functional test of port external transmit and receive path
datatype show - display available diagnostic data types
diandclearerror - clears diagnostics failure status
diagcommandshow - display diagnostic command descriptions
diagenablepost - disable diagnostic POST
diagenablepost - enable diagnostic POST
diagenv - diagnostic debug parameters management package

---<output truncated>---
```

## See Also

[diagHelp](#)

## diagDisablePost

Disables power-on self-test (POST) execution at reboot.

### Synopsis

diagDisablePost

### Availability

admin

### Description

Use this command to disable POST execution at switch reboot. This mode is saved in nonvolatile memory; POST remains disabled until it is enabled using the [diagEnablePost](#) command. A reboot is not required for this command to take effect.

HP recommends that POST always be enabled to ensure the operational status of the switch during the power-on stage

---

**Note:** This command disables POST on both Core Switch 2/64 logical switches.

---

### Operands

none

### Example

To disable the POST during future power ons:

```
switch:admin> diagdisablepost
Config update Succeeded
Diagnostic POST is now disabled
```

### See Also

[diagEnablePost](#)

## diagEnablePost

Enables power-on self-test (POST) execution at next reboot.

### Synopsis

diagEnablePost

### Availability

admin

### Description

Use this command to enable POST execution at the next switch reboot. This mode is saved in nonvolatile memory; POST remains enabled until it is disabled using the [diagDisablePost](#) command. A reboot is not required for this command to take effect.

HP recommends that POST always be enabled to ensure the operational status of the switch during the power-on stage. The factory default enables POST execution.

---

**Note:** This command disables POST on both Core Switch 2/64 logical switches.

---

### Operands

none

### Example

To enable the POST during future power ons:

```
switch:admin> diagdisablepost
Config update Succeeded
Diagnostic POST is now enabled
```

### See Also

[diagDisablePost](#)



## diagEsdPorts

Sets the ESD skip-ports list.

### Synopsis

```
diagesdports [itemlist | -show]
```

### Availability

admin

### Description

Use this command to set the ESD idle ports list. The list is saved in nonvolatile memory and stays in that mode until the next execution of [diagEsdPorts](#).

ESD idle ports are used by several of the functional test methods to disable testing on the specified list of ports when ESD mode is enabled (see [diagsetesdmode](#)). The exact type of port list and the exact use of this list are determined by each test method.

The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

### Operands

This command has the following operands:

<code>itemlist</code>	Specify the range of ports to be set to ESD idle. See <a href="#">itemList</a> for more information.
<code>-show</code>	Specify this operand to display ESD idle ports list. This operand is optional.

### Example

To display the ESD Idle Ports list:

```
switch:admin> diagesdports -show
ESD Idle Port list is 1-8.
```

## See Also

[itemList](#)

## diagFailLimit

Sets the diagnostics fail limit to a specified value.

### Synopsis

```
diagfaillimit [limit | -show]
```

### Availability

admin

### Description

Use this command to set the diagnostics fail limit to a specified value. The fail limit controls the number of failures before certain diagnostic test methods aborts. The normal setting is 1 so that the tests aborts on the first failure. The exact use of this configuration setting depends on the test method.

The fail limit is saved in nonvolatile memory and stays set until the next execution of [diagFailLimit](#).

The new fail limit becomes active as soon as this command is executed; it does not require a reboot to take effect.

### Operands

This command has the following operands:

<code>limit</code>	Specify the number of failures before a diagnostic test aborts. The limit value must be 1 or greater. This operand is optional.
<code>-show</code>	Specify this operand to display the current fail limit setting. This operand is optional.

If no operand is specified, the current value is displayed.

## Example

To change the fail limit from 1 to 5:

```
switch:admin> diagfaillimit - show
Fail Limit is 1.
switch:admin> diagfaillimit 5
Fail Limit is now 5.
Config update Succeeded
```

## diagHelp

Displays diagnostic command information.

### Synopsis

```
diagHelp [-name command]
```

### Availability

all users

### Description

Use this command to display a short description of diagnostic commands.

### Operands

This command has the following operand

<code>-name <i>command</i></code>	Specify a command name to display more detailed information. This operand displays a parameter list, subtest information, and diagnostic error codes if available.
-----------------------------------	--

## Example

To display information about diagnostic commands:

```
switch:admin> diaghelp
backplanetest - backplane connection test for multi-blade systems
backport - test for back-end ASIC pair to ASIC pair links.
bladediag - run a suit of diagnostic tests on a switch blade
switchdiag - run a suit of diagnostic tests on a switch blade
bladediagshort - run a suit of diagnostic tests on a switch blade
bladepropshow - display blade properties
burninlevel - set the diagnostics burnin level
burninstatus - display the diagnostics burnin status
camtest - verify QuickLoop's Content Addressable Memory (CAM) SID translation
centralmemorytest - test ASIC central memory operation
chippropshow - display chip properties
chipregshow - display contents of port registers
cmemretentiontest - data retention test of the central memory SRAMs
cmittest - verify CMI bus between ASICs
crossporttest - functional test of port external transmit and receive path
datatypeshow - display available diagnostic data types
diagclearerror - clears diagnostics failure status
diagcommandshow - display diagnostic command descriptions
diagdisablepost - disable diagnostic POST
diagenablepost - enable diagnostic POST
diagenv - diagnostic debug parameters management package
diagesdports - set ESD skip ports list
diagfaillimit - set diagnostics fail limit
diaghelp - display diagnostic command descriptions
diagloopid - select the diagnostics loop ID
diagmodepr - set or display diagnostic print mode
diagmodeshow - display diagnostic mode configuration
diagpost - set or display diagnostic POST configuration
diagretry - set or display diagnostic retry mode
diagsetburnin - initializes the blade for a burnin run.
diagsetcycle - set diagnostic script parameters
diagshow - display diagnostics status
diagshowtime - set or display diagnostic show-time mode
diagsetshowtime - set or display diagnostic show-time mode
diagsilkworm - set or display silkworm mode
diagskiptests - set or display diagnostics skip test flags

---<continued on next page>---
```

```

diagstatus - display currently running diagnostic tests
diagstopburnin - terminate burnin run on a blade
filtertest - frame filter test for bloom ASICs
itemlist - List parameter syntax and grammar information.
loopporttest - functional test of L-port M->M path on a loop
minicycle - functional test of internal and external transmit and receive
paths at full speed
mulregdump - display the contents of port registers and memories
portledtest - cycle user port LEDs
portloopbacktest - functional test of port N->N path
portregtest - write/read test of the ASIC SRAMs & registers
porttest - functional test on a live fabric. Starts porttest.
porttestshow - retrieve information from porttest.
ptbufshow - dump port buffer contents
ptcreditshow - display port credits
ptdatashow - display port data structures
ptphantomshow - display the quick-loop CAM tables
ptpropshow - display port property contents
ptregshow - display contents of port registers
ptrouteshow - display port routing tables
ptstatsshow - display port statistics
ramdump - display the contents of port internal registers
setesdmode - set or display ESD mode
diagsetesdmode - set or display ESD mode
setmediamode - set or display media mode
setsfpmode - set or display media mode
setgbicmode - set or display media mode
setmfgmode - set or display diagnostic MFG mode
setsplbmode - set or display SPLB mode
spinfab - functional test of switch to switch ISL cabling and trunk group
operation
spinjitter - line-speed jitter measurement
spinsilk - functional test of internal and external transmit and receive paths
at full speed
sramretentiontest - data retention test of the miscellaneous SRAMs in ASIC
statsclear - clear port and diagnostic statistics
statstest - statistics counter test for bloom ASICs
stopporttest - terminate the running porttest
supportshow - configurable groups of predefined display commands for debugging
supportshowcfgshow - configurable groups of predefined display commands for
debugging
supportshowcfgenable - configurable groups of predefined display commands for
debugging
supportshowcfgdisable - configurable groups of predefined display commands for
debugging
systemtest - run a series of diagnostic tests on a switch blade
systemverification - run a suit of diagnostic tests on all switches in a system
turboramtest - turbo SRAM test for bloom ASICs
txdpath - functional test of ASIC pair TXA TXD connections
voltagemargin - set the slot voltage margin

```

## diagLoopid

Sets the diagnostics loop ID.

### Synopsis

```
diagloopid [id | -show]
```

### Availability

admin

### Description

Use this command to select the loop ID to be used by FL\_Port mode diagnostics. The value entered will be converted from a loop ID to the corresponding AL\_PA and used as the port address for any diagnostics that operate in FL\_Port mode.

The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

### Operands

This command has the following optional operands:

<code>id</code>	Specify the loop ID for FL_Port mode diagnostics.
<code>-show</code>	Specify -show to display the current loop ID.

If no operand is specified, the current value is displayed.



## Example

To display the loop ID:

```
switch:admin> diagloopid  
FL mode Loop ID is 125.
```

## Notes

Currently, no FL\_Port mode tests exist.

## diagmodepr

Enables or disables mode messages.

### Synopsis

```
diagmodepr [mode | -show]
```

### Availability

admin

### Description

Use this command to enable (1) or disable print mode (0). The mode is saved in nonvolatile memory until the next execution of [diagmodepr](#). The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

Print mode causes extra messages to display in the burn-in and POST scripts. The exact behavior varies, depending on the script being run.

### Operands

This command has the following operands:

mode	Specify 1 to enable print mode, specify 0 to disable print mode. This operand is optional.
-show	Specify this operand to display the current mode. This operand is optional.

If no operand is specified, the current value is displayed.

### Example

To enable print mode messages:

```
switch:admin> diagmodepr -show
Diagnostic Print Mode is currently disabled.
switch:admin> diagmodepr 1
Config update Succeeded
Diagnostic Print Mode is now enabled.
```

## diagpost

Sets or displays diagnostic POST configuration.

### Synopsis

```
diagpost [mode | -show]
```

### Availability

admin

### Description

Use this command to enable or disable POST testing. The mode is saved in nonvolatile memory (and stays in that mode) until the next execution of [diagpost](#). The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

POST mode modifies the behavior of the diagnostics daemon program to inhibit testing of switch blades when the system is first powered on or a new blade is added.

### Operands

This command has the following operands:

<code>mode</code>	Specify 1 to enable POST test, specify 0 to disable POST test. This operand is optional.
<code>-show</code>	Specify this operand to display the current mode. This operand is optional.

If no operand is specified, the current value is displayed.

### Example

To enable and then disable the POST test:

```
switch:admin> diagpost
Diagnostic POST is currently disabled
switch:admin> diagpost 1
Config update Succeeded
Diagnostic POST is now enabled.
```

## Notes

To enable or disable diagnostic POST, the recommended method is to use [diagEnablePost](#) and [diagDisablePost](#).

## See Also

[diagDisablePost](#)

[diagEnablePost](#)

# diagRetry

Sets or displays diagnostic retry mode.

## Synopsis

diagretry [mode | -show]

## Availability

admin

## Description

Use this command to enable retry mode if the mode value is nonzero and to disable the retry mode if the mode value is 0. The mode is saved in flash memory (and stays in that mode) until the next execution of [diagRetry](#). The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

Retry mode modifies the behavior of the diagnostic test methods, power-on self-test (POST), and burn-in scripts. The exact behavior depends on the tests and scripts that are run.

## Operands

This command has the following optional operands:

mode	Specify 1 to enable retry mode, specify 0 to disable retry mode.
-show	Specify this operand to display the current mode setting.

If no operand is specified, the current value is displayed.

## Example

To view the current retry mode value:

```
switch:admin> diagretry -show
Diagnostic Retry Mode is now enabled.
```

## diagSetBurnin

Initializes the blade for a burn-in run.

### Synopsis

```
diagsetburnin [--slot number][script | -current]
```

### Availability

admin

### Description

This sets up the blade burn-in parameters for the registered burn-in script. Alternatively, the name of burn-in script can be set with `burninname` command. The burn-in will start at the next run of power-on self-test (POST) on the designated blade(s).

The errors and activity logs are stored in nonvolatile memory. The activity log of the script is saved in `/var/log/scriptname.slot.log`. The errors produced are available from the `burninerrshow` command on a per-blade basis. When power cycles occur, the burn-in activity is restarted at the test that was interrupted at the time of the power cycle. This command does not require a reboot to take effect.

### Options

This command has the following operands:

<code>--slot <i>number</i></code>	Specify which slot number to update. If this option is not specified at all, then all slots on the switch are setup for burnin.
<code><i>script</i></code>	Specify the name of the burnin script to run.
<code>-current</code>	Set the name of burnin script to current burnin script.

## Example

To set the burn-in script and mode:

```
switch:admin> diagsetburnin --slot 1 -current
existing script is: /fabos/share/switchess.sh
Burnin mode is Enabled.
Removing all log files in /var/log for slot 1
Slot 1 burnin name is now /fabos/share/switchess.sh
Config update Succeeded
```

## Notes

Boards must be installed prior to running this command and [diagSetCycle](#) must be run prior to [diagSetBurnin](#) if you want to use both commands.

## See Also

[diagSetCycle](#)

## diagSetCycle

Sets diagnostic script parameters.

### Synopsis

```
diagsetcycle script[-show|-default|[-keyword value]]
```

### Availability

admin

### Description

Use this command to provide an interactive method to update diagnostic command parameters. If only a script is specified, the command displays all configuration variables used by the specified script and enter an interactive session. Using the full parameters, variables can be updated noninteractively.

In interactive mode, the current value, default value, and description of purpose of the variable are displayed for each variable. If no new value is specified, the current value is left unchanged. If a new value is entered, its value is updated and stored in the configuration database for that blade type. This command does not require a reboot to take effect.

### Options

This command has the following operands:

<code>script</code>	Specify which script's parameters to edit.
<code>-show</code>	Specify this operand to display the parameters for a diagnostic script specified by <code>script</code> .
<code>-default</code>	Specify this operand to set the script parameters to default values.
<code>-keyword value</code>	The script parameters can be updated non-interactively using this style of option list. <code>keyword</code> is the keyword to update and the <code>value</code> should be specified manually in this case.



## Example

To update diagnostic command parameters:

```
switch:admin> diagsetcycle switchburnin.sh -show
CURRENT - KEYWORD      : DEFAULT
1        - number_of_runs : 1
2        - vib          : 2
10       - thermal      : 10
BURNIN   - label        : BURNIN
1        - tbr_passes   : 1
1        - prt_on       : 1
1        - cntmem_on    : 1
1        - cmi_on       : 1
1        - retention_on : 1
1        - cam_on       : 1
50       - flt_passes   : 50
25       - sta_passes   : 25
100      - plb_nframes  : 100
50       - txd_nframes  : 50
200      - xpt_nframes  : 200
20       - bpt_nframes  : 20
50       - slk_nmegs    : 50
30       - bpt_all_nframes: 30
50       - slk_all_nmegs : 50
```

## See Also

[diagSetBurnin](#)

[diagStopBurnin](#)

## diagShow

Displays diagnostics status.

### Synopsis

```
diagshow [--slot number] [-uports itemlist] [-bports  
itemlist] [-use_bports value]
```

### Availability

all users

### Description

Use this command to display the diagnostics status for the specified list of blade or user ports.

### Options

This command has the following options:

<code>--slot <i>number</i></code>	Specify which slot to operate on. If this option is not specified, the default slot 0 is used. The default slot is designed to operate on fixed-port-count products. By default, this command displays all user ports in the system.
<code>-uports <i>itemlist</i></code>	Specify a list of user ports to display. This operand is optional.
<code>-bports <i>itemlist</i></code>	Specify a list of blade ports to display. This operand is optional.
<code>-use_bports <i>value</i></code>	If <i>value</i> is not 0, the diagnostics status for the blade ports specified in <i>use_bports</i> will be displayed, otherwise the user ports specified in <i>-uports</i> is displayed. The default value is 0. This operand is optional.

**Example**

To display diagnostic status on a switch blade:

```
switch:admin> diagshow

Diagnostics Status:  Fri Feb 08 15:25:24 2002
Slot: 1 UPORTS
Port      BPort    Diag      Active    Speed      .....
0         15       OK        UP        2G Auto    .....
1         14       OK        UP        2G Auto    .....
2         13       OK        UP        2G Auto    .....
3         12       OK        UP        2G Auto    .....
4         31       OK        UP        2G Auto    .....
5         30       OK        UP        2G Auto    .....
6         29       OK        UP        2G Auto    .....
7         28       OK        UP        2G Auto    .....
8         47       OK        UP        2G Auto    .....
--- <output truncated> ---
```

**See Also**

[itemList](#)

## diagshowtime

Sets or displays diagnostic show-time mode.

### Synopsis

```
diagshowtime [mode | -show]
```

### Availability

admin

### Description

Use this command to enable show-time mode (if the mode value is not 0) or disable the show-time mode (if the mode value is set to 0). The mode is saved in flash memory (and stays in that mode) until the next execution of [diagshowtime](#). The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

Show-time mode, when enabled, causes each test to display elapsed-time messages. It is normally used during burn-in and for test method debugging.

### Options

This command has the following options:

mode	Specify 1 (or any nonzero value) to enable show time mode, specify 0 to disable show time mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified, the current value is displayed.

## Example

To enable show-time mode:

```
switch:admin> diagshowtime
Show Time mode is 0 (Disabled).
switch:admin> diagshowtime 1
Config update Succeeded
Show Time mode is now 1 (Enabled).
switch:admin>
```

## Note

diagsetshowtime is an alias of [diagshowtime](#).

## diagSilkWorm

Enables or disables silkworm mode.

### Synopsis

```
diagsilkworm [mode | -show]
```

### Availability

admin

### Description

Use this command to enable silkworm mode (if the mode value is not 0) or disable the silkworm mode (if the mode value is 0). The mode is saved in flash memory (and stays in that mode) until the next execution of [diagSilkWorm](#). The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

Silkworm mode, when enabled, notifies the diagnostics environment and test methods that the tests are running in silkworm mode. For proper operation, FCSW mode must also be disabled.

### Operands

This command has the following operands:

mode	Specify 1 to enable silkworm mode, specify 0 to disable silkworm mode. This operand is optional.
-show	Specify this operand to display the current mode setting. This operand is optional.

If no operand is specified, the current value is displayed.

## Example

To enable diagsilkworm mode:

```
switch:admin> diagsilkworm -show  
Silkworm mode is 0 (Disabled).
```

---

**Note:** This mode might not be used by burn-in or POST scripts for multiblade systems because it is a switch-wide configuration.

---

## diagSkipTests

Enables or disables diagnostics skip test flags.

### Synopsis

```
diagskiptests [value | -show]
```

### Availability

admin

### Description

Use this command to enable or disable the diagnostics skip test flags. The skip test flags are saved in nonvolatile memory and stay set until the next execution of [diagSkipTests](#).

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The skip test flags are used to skip the execution of certain POSTs that might prove hazardous to normal switch operation. The exact use of this flag is determined by the POST scripts and the specific test methods used.

### Operands

This command has the following operands:

value	Specify a bit mask for tests to be skipped.
-show	If specified or no value is given, the current skip test flags will be displayed.

If no operand is specified, the current value is displayed.



**Example**

To display the current skip test flags:

```
switch:admin> diagskiptests -show  
Skip tests is 0.  
switch:admin> diagskiptests 1  
Config update Succeeded  
Skip tests is now 1.
```

## diagStopBurnin

Terminates a blade burn-in run.

### Synopsis

```
diagstopburnin [-slot slot]
```

### Availability

admin

### Description

Use this command to determine which PID is running burn-in on a blade and terminate that activity. The burn-in script handles the logging cleanup.

This command does not require a reboot to take effect.

### Operands

This command has the following operands:

`-slot slot`

Specify the slot to stop burn-in. If no slot is specified this command executes on all slots in the logical switch. This operand is optional.

## Example

To stop burn-in mode on a switch:

```
switch:admin> diagstopburnin --slot 1
No burnin script active on slot 1
1 burninErrShow output:
0x1eea (fabos): Dec 19 14:42:18
Switch: 0, Error DIAG-MANUAL1, 1, " 1 Starting switchess ...
Err# 0140042 0100:101:000:001:24:37:

0xc84 (fabos): Dec 20 08:57:27
Switch: 0, Error DIAG-MANUAL1, 1, " 1 switchess: ABORT ...
Err# 0140042 0100:101:000:000:25:41:

0x1b61 (fabos): Feb 07 19:02:28
Switch: 0, Error DIAG-MANUAL1, 1, " 1 Starting switchess ...
Err# 0140042 0100:101:000:001:26:39:

0x47ff (fabos): Feb 07 21:45:36
Switch: 0, Error DIAG-MANUAL1, 1, " 1 switchess: ABORT ...
Err# 0140042 0100:101:000:002:26:41:1N
```

## See Also

[diagSetBurnin](#)

## dlsReset

Disables dynamic load sharing (DLS) option.

### Synopsis

dlsReset

### Availability

admin

### Description

Use this command to turn off DLS when a fabric change occurs. See [dlsSet](#) for a full description of load sharing

---

**Note:** This command should be used only if devices connected to the fabric cannot handle occasional routing changes correctly.

---

### Operands

none

### Examples

To disable the dynamic load sharing option:

```
switch:admin> dlsReset
Committing configuration...done.
switch:admin> dlsShow
DLS is not set
```

### See Also

[dlsSet](#)

[dlsShow](#)

## dlsSet

Enables the dynamic load sharing (DLS) option.

### Synopsis

```
dlsSet
```

### Availability

admin

### Description

Use this command to turn on DLS when a fabric change occurs.

Routing is generally based on the incoming port and the destination domain. This means that all the traffic coming in from a port (either an E\_Port or an Fx\_Port) directed to the same remote domain is routed through the same output E\_Port.

To optimize fabric routing, when there are multiple equivalent paths to a remote switch, traffic is shared among all the paths. Load sharing is recomputed when a switch is booted up or every time a change in the fabric occurs. A change in the fabric is defined as an E\_Port going up or down or an Fx\_Port going up or down.

If DLS is turned off (using [dlsReset](#)), load sharing is performed only at boot time or when an Fx\_Port comes up. Optimal load sharing is rarely achieved with DLS disabled.

If DLS is turned on (using [dlsSet](#)), routing changes can affect working ports. For example, if an Fx\_Port goes down, another Fx\_Port might be rerouted from one E\_Port to a different E\_Port. The switch minimizes the number of routing changes, but some are necessary to achieve optimal load sharing.

### Operands

none

## Examples

To enable the dynamic load sharing option:

```
switch:admin> dlsSet  
Committing configuration...done.  
switch:admin> dlsShow  
DLS is set
```

## See Also

[dlsSet](#)  
[dlsShow](#)  
[iodReset](#)  
[iodSet](#)  
[iodShow](#)  
[urouteShow](#)  
[topologyShow](#)

## dlsShow

Display the setting of the dynamic load sharing (DLS) option.

### Synopsis

dlsShow

### Availability

all users

### Description

Use this command to display whether DLS is on or off. One of two messages displays:

DLS is set	The DLS option is turned on. Load sharing is reconfigured with every change in the fabric.
DLS is not set	The DLS option is turned off. Load sharing is only reconfigured when the switch is rebooted or an Fx_Port comes up.

### Operands

none

### Example

To display the current DLS option setting:

```
switch:admin> dlsShow
DLS is set
```

### See Also

[dlsSet](#)  
[dlsReset](#)

## dnsConfig

Sets or displays domain name service (DNS) parameters.

### Synopsis

```
dnsconfig
```

### Availability

admin

### Description

Use this command to display or set the domain name service parameters.

The domain name service parameters are the domain name and the name server IP address for primary and secondary name servers.

### Operands

none



## Example

To set the DNS parameters for the system:

```
switch:admin> dnsconfig

Enter option
1 Display Domain Name Service configuration
2 Set   DNS configuration
3 Remove DNS configuration
4 Quit
Select an item (1..4) 2

Enter Domain Name : [] domain.com
Enter Name Server IP address in dot notation: [] 123.123.123.123
Enter Name Server IP address in dot notation: [] 123.123.123.124
DNS parameters saved successfully

Enter option
1 Display Domain Name Service configuration
2 Set   DNS configuration
3 Remove DNS configuration
4 Quit
Select an item (1..4) 4
```

## See Also

[ipAddrSet](#)

[ipAddrShow](#)

## errClear

Clears the switch error log.

### Synopsis

```
errClear [-p]
```

### Availability

admin

### Description

Use this command to clear the error log for a particular switch instance. If no operand is specified, this command clears the error log in RAM; the persistent error log is not cleared. However, if the `-p` option is specified, *only* the persistent error log is cleared and the error log in RAM is not cleared.

When the error log in RAM is cleared, displays the active or persistent error log with page breaks and [errDump](#) no longer display the persistent error logs unless the `-p` parameter is used.

---

**Note:** HP StorageWorks SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/16N, and SAN Switch 2/32 switches contain a single control processor (CP), which is always the *active* CP. Core Switch 2/64 and SAN Director 2/128 switches contain both an active and a standby CP.

---

### Operands

This command has the following operands:

<code>-p</code>	Clear messages <b>ONLY</b> from the persistent error log. Error log in RAM is not cleared.
-----------------	--

### Examples

To clear the current run time error log on the active CP:

```
switch:admin> errclear
```

To clear the persistent error log on the active CP1:

```
switch:admin> errclear -p
```

**See Also**

[errDump](#)  
[errNvLogSizeSet](#)  
[errNvLogSizeShow](#)  
[errShow](#)

## errDump

Displays the error log, without page breaks.

### Synopsis

```
errDump [-a] [-p] [saved]
```

### Availability

all users

### Description

Use this command to display the error log, displaying entries in the log without any page breaks. This command output is identical to displays the active or persistent error log with page breaks, except that displays the active or persistent error log with page breaks prompts the user to press Enter between each log entry.

The output of the [errDump](#) command includes the display of errors/events history recorded in the persistent error log and error/events logged in the current run time cycle. This command also provides options to display *only* those error/event messages that are saved in the persistent error log, or *only* those messages generated during the current run time cycle.

All important error log messages, regardless of their message severity level, are stored in a persistent storage as they are logged. Both the persistent error log and the run time log are limited in space and managed as circular buffers. When either log overflows, old entries are replaced by new entries.

The persistent error log is saved across system reboots and power cycles, and can be resized at run time with [errNvLogSizeSet](#).

---

**Note:** The SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/16N, and SAN Switch 2/32 switches contain a single control processor (CP), which is always the *active* CP. Core Switch 2/64 and SAN Director 2/128 switches contain both an active and a standby CP.

Error log messages are not persistent across failovers. Messages saved to the persistent error log are saved to the active CP. CP0 and CP1 have different persistent error logs, and displays the active or persistent error log with page breaks, and [errDump](#) command output is different, depending on the CP you log in to.

---

## Operands

This command has the following operands:

-a	Displays messages from the active error log. This displays the error log messages generated during the current run time cycle.
-p	Displays messages from the persistent error log.
saved	Any positive number to indicate that messages must display from the persistent error log. This command is the same as -p.

## Example

To display the error log without page breaks:

```
switch:admin> errDump

Error 03
-----
0x2a5 (fabos): Jun 14 12:03:51
Switch: 0, Debug HAMKERNEL-IP_UP, 5, (session=3) Heartbeat up from Standby CP

Error 02
-----
0x2a5 (fabos): Jun 14 12:03:50
Switch: 0, Info HAM-REDUNDANT_INFO, 4,
(Heartbeat Up) System in REDUNDANT state

Error 01
-----
0x28b (fabos): Jun 14 12:01:27
Switch: 0, Error EM-CP_ERR, 2, CP in slot 5 set to faulty because of CP ERROR
```

## See Also

[errNvLogSizeSet](#)  
[errNvLogSizeShow](#)  
[errSaveLvlSet](#)  
[errSaveLvlShow](#)  
[errShow](#)

## errNvLogSizeSet

Resizes the persistent error log.

### Synopsis

```
errNvLogSizeSet number_of_entries
```

### Availability

admin

### Description

Use this command to resize the persistent error log of a switch to a new size specified by the operand `number_of_entries`. The persistent error log is resized immediately after the successful execution of this command.

### Operands

This command has the following operand:

<code>number_of_entries</code>	Specify the new persistent error log size by number of entries. The error log can be resized within the specified limits. This command fails if an attempt is made to change the persistent error log beyond the range of valid values. Valid values are from 1024 to 2048.
--------------------------------	---

## Example

To resize the persistent error log to 1500 entries:

```
switch:admin> errnvlogssize set 1500  
Persistent error log is resized to store 1500 entries
```

## See Also

[errNvLogSizeShow](#)

[errSaveLvlShow](#)

[errShow](#)

## errNvLogSizeShow

Displays the current persistent (nonvolatile) error log configuration of a switch.

### Synopsis

errNvLogSizeShow

### Availability

all users

### Description

Use this command to display the current maximum size of the persistent error log.

---

**Note:** The SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/16N, and SAN Switch 2/32 switches contain a single control processor (CP), which is always the *active* CP. The Core Switch 2/64 and SAN Director 2/128 switches contain both an active and a standby CP.

The configuration of the persistent error log on the active CP is independent of the configuration on the standby CP.

---

### Operands

none

### Example

To display persistent error log configuration:

```
switch:admin> errNvLogSizeShow
Persistent Error Log can store 1024 entries
```



**See Also**

[errNvLogSizeSet](#)

[errSaveLvlShow](#)

[errShow](#)

## errSaveLvlSet

Sets the severity level at which switch errors are saved.

### Synopsis

```
errSaveLvlSet lvl
```

### Availability

admin

### Description

Use this command to control types of messages that are saved in the persistent error log. Message types are based on the message severity levels. By default, all messages of type Panic and Critical are saved in the persistent log. If you want to save messages of log levels less severe than Critical, use this command to specify a new message save level. This new message save level is not persistent across a reboot. It is in effect only for that run time cycle.

### Operands

This command has the following operand:

<i>lvl</i>	Message severity level. Save those error log messages whose message severity level is less than (more severe) or equal to this level. The valid values are: 1 - Critical 2 - Error 3 - Warning 4 - Info 5 - Debug
------------	--

### Example

To save Warning, Error, Critical, and Info messages in the persistent error log:

```
switch:admin> errSaveLvlSet 3
```

**See Also**

[errDump](#)  
[errNvLogSizeSet](#)  
[errSaveLvlSet](#)  
[errSaveLvlShow](#)

## **errSaveLvlShow**

Displays the current severity level at which switch errors are saved.

### **Synopsis**

`errSaveLvlShow`

### **Availability**

admin

### **Description**

Use this command to find out the current severity at which switch errors are saved.

### **Operands**

none

### **Example**

To display current severity at which switch errors are saved:

```
switch:admin> errsavelvlshow  
Current message save level is = 1
```

### **See Also**

[errNvLogSizeSet](#)  
[errNvLogSizeShow](#)  
[errSaveLvlSet](#)  
[errShow](#)

## errShow

Displays the active or persistent error log with page breaks.

### Synopsis

```
errShow [-a] [-p]
```

### Availability

all users

### Description

Use this command to display the error log page by page; you are prompted to press Enter after each log entry. It is identical to [errDump](#), except that [errDump](#) displays all entries without page breaks. The output of the command includes the display of errors/events recorded in the persistent error log during previous run-time (active) cycles and the display of error/event messages logged in the current run-time cycle.

All important error log messages, regardless of their message severity level, are stored in a persistent storage as they are logged. Both the persistent error log and the active log are limited in space and managed as circular buffers. When either log overflows, old entries are replaced by new entries.

The persistent error log is saved across system reboots and power cycles and can be resized at run time.

---

**Note:** The SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/16N, and SAN Switch 2/32 switches contain a single control processor (CP), which is always the *active* CP. The Core Switch 2/64 and SAN Director 2/128 switches contain both an active and a standby CP.

Error log messages are not persistent across failovers. Messages saved to the persistent error log are saved to the active CP. CP0 and CP1 have different persistent error logs, and the `errshow` and `errdump` command output is different depending on the CP you log in to.

---

## Operands

This command has the following operands:

- |    |  |
|----|--|
| -a | Displays messages from the active error log. This displays the error log messages generated during the current run time cycle. |
| -p | Displays messages from the persistent error log.   |

## Example

To display the error log with page breaks:

```
switch:admin> errshow

Error 14
-----
0x304 (fabos): Jun 14 11:57:52
Switch: 0, Warning FW-STATUS_SWITCH, 3, Switch status changed from HEALTHY/OK
to Marginal/Warning

Type <CR> to continue, Q<CR> to stop:
```

## See Also

[errDump](#)  
[errNvLogSizeSet](#)  
[errNvLogSizeShow](#)  
[errSaveLvlSet](#)  
[errSaveLvlShow](#)

## exit

Logs out from a shell session.

### Synopsis

exit

### Availability

all users

### Description

Use this command to log out from a telnet, rlogin or serial port session. Telnet and rlogin connections are closed; the serial port returns to the `login:` prompt.

The [exit](#) command is an accepted synonym for [logout](#), as is typing **Ctrl-D** at the beginning of a line.

### Operands

none

### Example

To exit from a shell session:

```
switch:admin> exit
Connection to host lost.
```

### See Also

[logout](#)

## fabPortShow

Displays fabric port information.

### Synopsis

```
fabportshow [slotnumber/]portnumber
```

### Availability

all users

### Description

Use this command to display the contents of a particular port's data and also any pending commands. The following information displays:

Port	Displays the port number.
State	The state of the port: P0 - Port Offline P1 - Port Online P2 - ELP ACC Received P3 - Link Reset Done I0 - Trunk Initiator: EMT Sent I1 - Trunk Initiator: ETP ACC Received I2 - Trunk Initiator: ETP Sent I3 - Trunk Initiator: Link Reset T0 - Trunk Target: EMT Received T1 - Trunk Target: ETP Received T2 - Trunk Target: Link Reset
List	IU list pointer.



Flags	Port flags:
	0x00000001 slave connection 0x00000002 loop back connection 0x00000004 incompatible connection 0x00000008 overlapping domains 0x00000010 overlapping zones 0x00000020 done PTIO ioctl 0x00000040 sent a RJT to ELP 0x00000080 BF received from the port 0x00000200 segmented by routing code 0x00000800 zoning has completed 0x00001000 segmented by Platform Management 0x00002000 segmented due to no license 0x00004000 segmented due to E_Port disabling 0x00008000 DIA already sent for that port 0x00010000 RDI already sent 0x00020000 port is true T port 0x00040000 Port received an ELP 0x00080000 Port received an ELP RJT 0x00100000 LR Pending due to ELP RJT rcv 0x00200000 Received a DIA on this port 0x00400000 Port is the EMT Initiator 0x00800000 Security violation 0x01000000 Security incompatibility 0x02000000 Rcv a DIA ACC
nbrWWN	Neighboring switch's WWN.
red_ports	All E-Ports that are connected to the same neighboring switch.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for an hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number.  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

## Example

To display fabric port information:

```
switch:admin> fabportshow 4/14
Fabric Port Information:
=====

Port:          62
State:         P3
List:          0x10068418
List Count:    0
Flags:         0x280120
nbrWWN:        10:00:00:60:69:80:06:cf
red_ports:
10 11 62 63

Open commands pending:
=====
No commands pending
```

## See Also

[portShow](#)

## fabretryshow

Displays the retry count of the fabric commands.

### Synopsis

```
fabretryshow
```

### Availability

all users

### Description

Use this command to display the retry count of the fabric commands. The first line of display shows:

```
SW_ISL    ISL ports
```

Each line below shows the retry count for the following fabric commands:

- ELP Exchange Link Parameters
- EFP Exchange Fabric Parameters
- DIA Domain Identifier Assigned
- RDI Request Domain Identifier
- BF Build Fabric
- RSCN Remote State Change Notification
- FWD Fabric Controller Forward
- EMT Fabric Controller Mark Timestamp
- GAID Get Address IDentifier
- INQ Inquiry command

### Operands

none

## Example

To display the retry count of Fabric OS commands:

```
switch:user> fabretryshow
```

		E_Ports	
SW_ILS	45	51	59
ELP	0	0	0
EFP	0	0	0
DIA	0	0	0
RDI	0	0	0
BF	0	0	0
RSCN	0	0	0
FWD	0	0	0
EMT	0	0	0
ETP	0	0	0
RAIT	0	0	0
GAID	0	0	0
INQ	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	0

## See Also

[fabStatsShow](#)

## fabricprincipal

Sets principal switch selection mode.

### Synopsis

```
fabricprincipal [-fhq] [ 1 | 0 ]
```

### Availability

all users (display current setting)

admin (modify current setting)

### Description

Use this command to set principal switch selection mode for the switch.

The implementation of the **fabricprincipal** command is based solely on mechanisms specified in the Fibre Channel standards. These mechanisms provide a *preference* for a switch requesting to be the principal switch in a fabric, but they do not provide an absolute guarantee that a switch requesting to be the principal switch will actually achieve this status.

When dealing with larger fabrics, the selection of the principal switch is less deterministic. In these cases, to help ensure that the desired switch is selected as the principal switch, a small selection of switches should be connected together first, followed by the addition of the rest of the fabric.

### Operands

This command has the following operands:

-f	Specify the -f option to force a fabric rebuild. This option is required with when enabling principal switch mode.
-h	Specify the -h option to display out command usage summary.
-q	Specify the -q option to display the current mode state.
1   0	Specify 1 to enable principal switch mode, or specify 0 to disable principal switch mode (the mode activates when the fabric rebuilds). This operand is optional.

## Examples

To display the current mode setting:

```
switch:admin> fabricprincipal -q  
Principal Selection Mode: Enable
```

To disable the mode setting:

```
switch:admin> fabricprincipal 0  
Principal Selection Mode disable
```

To enable the mode setting:

```
switch:admin> fabricprincipal 1  
Principal Selection Mode enabled
```

To enable the mode setting and force fabric rebuild:

```
switch:admin> fabricprincipal -f 1  
Principal Selection Mode enabled (Forcing fabric rebuild)
```

## See Also

[fabricShow](#)

**fabricShow**

Displays fabric membership information.

**Synopsis**

fabricShow

**Availability**

all users

**Description**

Use this command to display information about switches and multicast alias groups in the fabric.

If the switch is initializing or disabled, the message “no fabric” is displayed. If the fabric is reconfiguring, some or all switches might not display; otherwise, the following fields display:

Switch ID	The switch Domain_ID and embedded port D_ID.
World Wide Name	The switch WWN.
Enet IP Addr	The switch Ethernet IP address.
FC IP Addr	The switch FC IP address.
Name	The switch symbolic name. An arrow (>) indicates the principal switch.

Multicast alias groups are created on demand from N\_Ports attached to the alias server; typically, no groups are listed. If multicast alias groups exist, the following information is shown:

Group ID	The alias group number and D_ID.
Token	The alias group token (assigned by the N_Port).

**Operands**

none

### Example

The following example illustrates a fabric of four switches. “sw180” is the principal switch. Three of the switches are configured to run IP over Fibre Channel. There is one multicast alias group.

```
switch:admin> fabricShow
Switch ID      Worldwide Name      Enet IP Addr      FC IP Addr      Name
-----
 3: fffc43 10:00:00:60:69:10:60:1f 192.168.64.187 0.0.0.0      "sw187"
 2: fffc42 10:00:00:60:69:00:05:91 192.168.64.60 192.168.65.60 "sw60"
 1: fffc41 10:00:00:60:69:00:02:0b 192.168.64.180 192.168.65.180 >"sw180"
 0: fffc40 10:00:00:60:69:00:06:56 192.168.64.59 192.168.65.59 "sw5"
The Fabric has 4 switches
Group ID      Token
-----
0: fffb01 40:05:00:00:10:00:00:60:69:00:00:15
```

### See Also

[switchShow](#)



**fabstateclear**

Clears the fabric state information.

**Synopsis**

fabstateclear

**Availability**

admin

**Description**

Use this command to clear the queue of fabric state information logged by the fabric.

**Operands**

none

**Example**

To clear the fabric state information:

```
switch:admin> fabstateclear
switch:admin> fabstateshow
Time Stamp      Input and *Action      S, P      Sn,Pn      Port      Xid
=====
```

**See Also**

[fabStatsShow](#)

# fabStateShow

Displays the fabric state information.

## Synopsis

fabstateshow

## Availability

all users

## Description

Use this command to display the queue of fabric state information logged by the fabric.

## Operands

none

## Example

To display the fabric state information:

```
switch:admin> fabstateshow
Time Stamp      Input and *Action                                     S, P   Sn,Pn  Port  Xid
=====
10:58:35.185    BF Rcv                                                A2,P3  A2,P3   4     0x287
10:58:35.185    *Change State                                         A2,NA  F0,NA   NA     NA
10:58:35.185    BF sending ACC                                        F0,P3  F0,P3   4     0x287
10:58:35.197    *Canceling All Node Timers                           F0,NA  F0,NA   NA     NA
10:58:35.198    *BF Flood                                             F0,NA  F0,NA   NA     NA
10:58:35.200    *BF Send                                              F0,P3  F0,P3  40     0x253
10:58:35.200    *BF Flood Done                                        F0,NA  F0,NA   NA     NA
10:58:35.200    *Cancel 2 * F_S_TOV Timer                           F0,NA  F0,NA   NA     NA
10:58:35.204    *Cancel EFP Flood Timer                             F0,NA  F0,NA   NA     NA
10:58:35.204    *Cancel RDI Receive Timer                           F0,NA  F0,NA   NA     NA
10:58:35.205    *Cancel RDI Send Timer                              F0,NA  F0,NA   NA     NA
10:58:35.205    *Start F_S_TOV Timer                                F0,NA  F0,NA   NA     NA
```

## See Also

[fabPortShow](#)

[fabstateclear](#)

## **fabStatsShow**

Displays the fabric statistics.

### **Synopsis**

fabStatsShow

### **Availability**

all users

### **Description**

Use this command to display the statistics for the fabric. The information displays as follows:

- Number of times a switch domain ID has been forcibly changed
- Number of E\_Port offline transitions
- Number of fabric reconfigurations
- Number of fabric segmentations due to:
  - Loopback
  - Incompatibility
  - Overlap
  - Zoning
  - Routing
  - Licensing
  - Disabling E\_Port

### **Operand**

none

## Example

To display the fabric statistics:

```
switch:admin> fabstatsshow
Description                               Count
-----
Domain ID forcibly changed:                2
E_Port offline transitions:                 0
Reconfigurations:                          9
Segmentations due to:
    Loopback:                              0
    Incompatibility:                        0
    Overlap:                               0
    Zoning:                                2
    Routing:                                2
    Licensing:                              4
    Disabling E_Port:                       0
```

## See Also

[fabretryshow](#)

## **fabswitchshow**

Displays the fabric switch state structure information.

### **Synopsis**

`fabswitchshow`

### **Availability**

all users

### **Description**

Use this command to display the fabric switch state structure information. This command is strictly for debugging; it is not intended as a user command.

### **Operands**

none

## Example

To display fabric switch state structure:

```
switch:admin> fabswitchshow
Fabric Switch State Structure Information
=====
State: A2
Rdi Receive Timer: 0x10051b48, IDLE STATE
Unconfirmed Sw Timer: 0x10051c50, IDLE STATE
Principal Domain: 4
Upstream Port: 4
Principal Wwn: 10:00:00:60:69:00:54:e8
Principal Priority: 0x2
Flags: 0x8
inq_sem count: 1
dbg_sem count: 1
fab_q current count: 0
fab_q high water: 16
fab_q age: 0 (sec)
dup xid occurrence: 0
last message:
14:47:57.029 RSCN Rcv addr: 0x51080b00 A2,NA A2,NA NA NA

reachable domains:
1 2 4 5 6 7 8 9 10 11 12 14 15 16 17 18
16 domains reachable
Ports used for EFP/BF/DIA flood:
4 42

Command Statistics:
command high(ms) low(ms) ave(ms) total dropped
=====
fc_write 151 1 0 655 N/A
P Timer 0 0 0 0 N/A
BF Timer 42 31 35 9 N/A
<output truncated>
```

## See Also

[supportShow](#)

## fanDisable

Disables a fan unit.

### Synopsis

```
fanDisable unit
```

### Availability

admin

### Description

Use this command to disable a nonfaulty fan unit by setting the RPM speed to 0.

### Operand

This command has the following operand:

<code>unit</code>	Specify the fan's unit number. View the fan unit numbers using the <code>fanShow</code> command. This operand is required.
-------------------	--

### Example

To disable a fan unit:

```
switch:admin> fandisable 1
Fan unit 1 has been disabled
```

### See Also

[fanEnable](#)

[fanShow](#)

## fanEnable

Enables a fan unit.

### Synopsis

```
fanEnable unit
```

### Availability

admin

### Description

Use this command to return the fan unit to the default RPM speed (only if the fan unit has been previously disabled using the [fanDisable](#) command).

### Operand

This command has the following operand:

<code>unit</code>	Specify the fan's unit number. View the fan unit numbers using the <code>fanShow</code> command. This operand is required.
-------------------	--

### Example

To enable a fan that has been disabled:

```
switch:admin> fanenable 1
Fan unit 1 has been enabled
switch:admin> fanshow

Fan #1 is OK, speed is 2237 RPM
Fan #2 is OK, speed is 2500 RPM
Fan #3 is OK, speed is 2445 RPM
```

### See Also

[fanDisable](#)

[fanShow](#)



fanShow

Displays fan status.

Synopsis

fanShow

Availability

all users

Description

Use this command to display the current status of the switch fans. The format of the display varies according to the switch model and number of fans. Some switch models display fan speed measured in RPM (revolutions per minute).

Fan status is shown as:

OK	Fan is functioning correctly.
absent	Fan is not present.
below minimum	Fan is present but rotating too slowly or stopped.
unknown	Unknown fan unit installed.
faulty	Fan has exceeded hardware tolerance.

**Note:** The output from this command varies depending on switch type and number of fans present.

Operand

none

## Example

To display the status and RPMs for the fans:

```
switch:admin> fanShow
Fan #1 is OK, speed is 2721 RPM
Fan #2 is OK, speed is 2721 RPM
Fan #3 is OK, speed is 2657 RPM
switch:admin>
```

## See Also

[chassisShow](#)

[fanDisable](#)

[fanEnable](#)

[psShow](#)

[tempShow](#)

## fastBoot

Reboots the control processor (CP), bypassing power-on self-test (POST).

### Synopsis

`fastBoot`

### Availability

admin

### Description

Use this command to reboot a single CP, bypassing POST. The reboot takes effect immediately as the CP resets and executes normal power-on booting sequence. However, POST is skipped, reducing boot time significantly.

If POST has been disabled using the [diagDisablePost](#) command, then [fastBoot](#) is the same as [reboot](#). However, [fastBoot](#) skips the POST on the current reboot, while [diagDisablePost](#) skips POST on all future reboots until cancelled by [diagEnablePost](#).

### Operands

none

### Example

To perform a reboot with no POST:

```
switch:admin> fastboot
```

### See Also

[diagDisablePost](#)

[diagEnablePost](#)

[reboot](#)

[switchReboot](#)

## faZoneAdd

Adds a member to a Fabric Assist zone.

### Synopsis

```
faZoneAdd "fazoneName", "member ; member"
```

### Availability

admin

### Description

Use this command to add one or more members to an existing Fabric Assist zone. This command does not change the defined configuration (which you can view using the [cfgShow](#) command) until the [cfgSave](#) command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the [cfgEnable](#) command. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operands:

fazoneName	Specify the name of the Fabric Assist zone, in quotation marks. This operand is required.
------------	---

member

Specify a list of Fabric Assist zone members. The whole list must be enclosed in quotation marks and members separated by semicolons. A member can be specified by one or more of the following methods:

- Enter a fabric domain and area number pair. View the area numbers for ports using the [switchShow](#) command.
- WWNs.
- Fabric Assist zone alias names.
- Exactly one Fabric Assist host member.

This operand is required.

## Examples

To add aliases for some disk arrays to “Blue\_fazone:”

```
switch:admin> fastzoneadd “Blue_fazone”, “array3; array4; array5”
```

To add a Fabric Assist host member to “Blue\_fazone:”

```
switch:admin> fastzoneadd “Blue_fazone”, “H(5,6)”
```

## See Also

[faZoneCreate](#)

[faZoneRemove](#)

[faZoneShow](#)

## faZoneCreate

Creates a Fabric Assist zone.

### Synopsis

```
faZoneCreate "fazoneName", "member;member"
```

### Availability

admin

### Description

Use this command to create a new Fabric Assist zone. You must specify a name and member list. The FA zone name must be unique among all Fabric Assist zone objects. The member list must be enclosed in quotation marks members separated by a semicolons.

A Fabric Assist zone name is in C language style. It must begin with a letter and be followed by any number of letters, digits, and underscore characters. Names are case sensitive; for example, “Zone\_1” and “fazone\_1” are different Fabric Assist zones. Spaces are ignored.

The Fabric Assist zone member list must have at least one FA host and one target member. Empty lists are not allowed.

When a Fabric Assist zone member is specified by physical fabric port number, then all devices connected to that port are in the Fabric Assist zone. If this port is an arbitrated loop, then all devices on the loop are in the Fabric Assist zone.

WWNs are specified as eight hex numbers separated by colons, for example, “10:00:00:60:69:00:00:8a”. Zoning has no knowledge of the fields within a WWN; the eight bytes are simply compared with the node and port names presented by a device in a login frame (FLOGI or PLOGI).

When a Fabric Assist zone member is specified by node name, then all ports on that device are in the Fabric Assist zone. When a Fabric Assist zone member is specified by port name, only that single device port is in the Fabric Assist zone. Zone alias names have the same format as Fabric Assist zone names and are created with the [aliCreate](#) command. The alias must resolve to a list of one or more physical fabric port numbers, WWNs, or a Fabric Assist host.

A Fabric Assist host member is defined by wrapping the physical fabric port or a physical device (a WWN) between “H{” and “}”. For example, “H{5,6}” or “H{10:00:00:60:69:00:00:8a}” is a Fabric Assist host. The type of Fabric Assist zone members used to define a Fabric Assist zone might be mixed and matched. For example, a Fabric Assist zone defined with the following members “2,12; 2,14; 10:00:00:60:69:00:00:8a” would contain devices connected to switch 2, ports 12 and 14, and the device with a WWN of “10:00:00:60:69:00:00:8a” (either node name or port name: whichever port in the fabric it is connected to.)

This command does not change the defined configuration (which you can view using the [cfgShow](#) command) until the [cfgSave](#) command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the [cfgEnable](#) command. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

The following operands are required:

fazoneName	Specify the name of the Fabric Assist zone, in quotation marks. This operand is required.
member	<p>Specify a list of Fabric Assist zone members. The list must be enclosed in quotation marks and members separated by semicolons. A member can be specified by one or more of the following methods:</p> <ul style="list-style-type: none"><li>■ Enter a fabric domain and area number pair. View the area numbers for ports using the <a href="#">supportShow</a> command.</li><li>■ WWNs.</li><li>■ Fabric Assist zone alias names.</li><li>■ Exactly one Fabric Assist host member.</li></ul> <p>This operand is required.</p>

## Example

To create three Fabric Assist zones using a mixture of port numbers and Fabric Assist zone aliases:

```
switch:admin> fazonecreate "fazone1", "H{1,0}; loop1"  
switch:admin> fazonecreate "fazone2", "H{1,1}; array1; 1,2; array2"  
switch:admin> fazonecreate "fazone3", "1,0; loop1; H{1,2}; array2"
```

## See Also

[faZoneAdd](#)

[faZoneRemove](#)

[faZoneShow](#)



## faZoneRemove

Removes members from a Fabric Assist mode zone.

### Synopsis

```
fazoneremove "fazoneName", "member; member"
```

### Availability

admin

### Description

Use this command to remove one or more members from an existing Fabric Assist zone.

Each deleted member must be found by an exact string match. Order is important when removing multiple members of a Fabric Assist zone. For example, if a Fabric Assist zone contains "array2; array3; array4", removing "array4; array3" fails but removing "array3; array4" succeeds. If issuing this command results in all members being removed, the Fabric Assist zone is deleted.

This command does not change the defined configuration (which you can view using the [cfgShow](#) command) until the [cfgSave](#) command is issued. For the change to become effective, an appropriate Fabric Assist zone configuration must be enabled using the [cfgEnable](#) command. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

The following operands are required:

fazoneName	Specify the name of the zone to be deleted, in quotation marks. The operand is required.
------------	--

member

Specify a list members to remove from a Fabric Assist zone. The list must be enclosed in quotation marks and members separated by semicolons. A member can be specified by one or more of the following methods:

- Enter a fabric domain and area number pair. View the area numbers for ports using the [switchShow](#) command.
- WWNs.
- Fabric Assist zone alias names.
- Exactly one Fabric Assist host member.

This operand is required.

## Example

To remove “array2” from “Blue\_fazone:”

```
switch:admin> fazoneremove “Blue_fazone”, “array2”
```

## See Also

[faZoneAdd](#)

[faZoneCreate](#)

[faZoneShow](#)

# faZoneShow

Displays Fabric Assist zone information.

## Synopsis

fazoneshow ["pattern"[, transflad]]

## Availability

all users

## Description

Use this command to display Fabric Assist zone information. Specifying this command with no parameters or with the second parameter set to 0 displays all Fabric Assist zone configuration information for both defined and effective configurations. Defined configuration information is shown from the transaction buffer. See the [cfgShow](#) command for a description of this display.

If a parameter is specified, it is used as a pattern to match Fabric Assist zone names, and those that match in the defined configuration are displayed.

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

## Operands

This command has the following operands:

pattern	Specify a value to search the name of a Fabric Assist zone. This can be any POSIX-style expression. <ul style="list-style-type: none"><li>■ Question mark (?), which matches any single character</li><li>■ Asterisk (*), which matches any string of characters</li><li>■ Ranges, which match any character within the range: for example, [0-9] or [a-f]</li></ul> The operand is required.
---------	---

transflag	Specify 0 to display the information from the current transaction, or specify 1 to display information from the original buffer. This operand must be preceded by a pattern.
-----------	--

## Example

To display all Fabric Assist zones beginning with the letters A through C:

```
switch:admin> fazoneshow "[A-C] *"  
fazone:      Blue_fazone  
            1,1;array1; 1,2; array2
```

## See Also

[faZoneAdd](#)

[faZoneCreate](#)

[faZoneRemove](#)

# fcpProbeShow

Displays the Fibre Channel Protocol (FCP) probe information.

## Synopsis

`fcpprobeshow [slotnumber/]portnumber`

## Availability

all users

## Description

Use this command to display the FCP probing information for a particular device, which should be of type F/FL\_Port. If the given port is not either, then the following is displayed:

`port x is not an FL_Port or an F_Port`

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Example

To display the FCP probe information:

```
switch:admin> fcprobeshow 4/4

port 52 is L-Port and it is online.
nodes probed:                2
successful PLOGIs:           2
successful PRLIs:             2
successful INQUIRies:        2
successful LOGOs:             2
outstanding IUs:             0

list of devices(may include old devices on the loop):
0x2b4e2: IBM      DDYF-T09170R   F60N
0x2b4e4: IBM      DDYF-T09170R   F60N
```

## See Also

[portLoginShow](#)

[portLogShow](#)

## fcprlsShow

Display the Fibre Channel Protocol (FCP) Read Link Status (RLS) information.

### Synopsis

```
fcprlsShow [slotnumber/]portnumber
```

### Availability

all users

### Description

Use this command to display the FCP RLS information for a particular device, which should be either an F\_ or FL\_Port. If the given port is not either of these the following displays:

```
port x is not an FL_Port or an F_Port
```

### Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

## Example

To display the FCP RLS information:

```
switch:admin> fcprlsshow 9/1  
link fail    loss sync    loss sig    prtc err    bad word    crc err
```

## See Also

[portLoginShow](#)

[portLogShow](#)



## fdmiCacheShow

Displays abbreviated remote FDMI device information, according to remote domain ID.

### Synopsis

`fdmicacheshow`

### Availability

all users

### Description

Use this command to display FDMI cache information for remote domains only.

The state of each remote domain, identified by its domain ID, is shown to be UNKNOWN, KNOWN, UNSUPPORTED, or ERROR.

The revision of FDMI supported is also shown, followed by the identifiers of all the HBAs at the domain and the corresponding registered port list.

For HBAs, only the HBA identifiers and registered port lists are displayed. No detailed HBA attributes are displayed. For registered ports, only port identifier and corresponding HBA are shown; no detailed port attributes are displayed.

### Operands

none

### Example

To display the FDMI cache:

```
switch:admin> fdmicacheshow
Switch entry for domain 1
state      known
version    v410
wwn        10:00:00:60:69:80:4f:85

No devices.
Total count of devices on the switch is 1
```

## See Also

[fdmiShow](#)

## **fdmiShow**

Displays detailed FDMI device information.

### **Synopsis**

```
fdmi show
```

### **Availability**

all users

### **Description**

Use this command to display FDMI information for all HBAs and ports.

Detailed FDMI information is displayed for local HBAs and ports. This information includes the HBA with its corresponding ports, along with their respective attributes.

Only abbreviated FDMI information is shown for HBA and ports on remote switches.

### **Operands**

none

## Example

To display FDMI information on a local switch:

```
switch:admin> fdmishow
Local HBA database contains:
10:00:00:00:c9:25:9b:96
  Port List: total 1 port(s)
  Id: 10:00:00:00:c9:25:9b:96
  Port attributes:
    FC4 Types: 0x0001000001000000000000000000000000000000000000000000000000000000...
    Supported Speed: 0x00000001
    Port Speed: 0x00000001
    Frame Size: 0x00000800

HBA attributes:
  Node Name: 20:00:00:00:c9:25:9b:96
  Manufacturer: Emulex Corporation
  Serial Number: 0000c9259b96
  Model: LP9000
  Model Description: Emulex LightPulse LP9000 1 Gigabit PCI Fibre Channel
  Adapter
  Hardware Version: 1002806D
  Driver Version: 5-5.00A6
  Firmware Version: 3.81A1
  OS Name and Version: Window 2000
  Max CT Payload Length: 0x00ff0000

Local PORT database contains:
10:00:00:00:c9:25:9b:96

REMOTE_HBA database contains
10:00:00:00:c9:25:0f:e4
Ports: 1
10:00:00:00:c9:25:9b:96

Remote PORT database contains
10:00:00:00:c9:26:0f:e4
```

## See Also

[fdmiCacheShow](#)

## ficonClear

Clears the records from the specified FICON management database.

---

**Note:** Although referenced in this guide, HP does not support FICON at this time.

---

### Synopsis

```
ficonClear [RCIR] [RNID]
```

### Availability

all users

### Description

Use this command to remove all the RLIR records stored in the local RLIR database or remove all of the “not current” RNID records stored in the local RNID database. The "not current" entries in the RNID database are devices that were previously connected but are no longer online.

### Operands

none

### Examples

To clear all the local RLIR records:

```
switch:user> ficonclear RLIR  
successfully clear local RLIR Database
```

To clear all the “not current” local RNID records:

```
switch:user> ficonclear RNID  
successfully clear not current entries from local RNID Database
```

## Exit Status

0	Successful operation (nothing displayed)
-1	Invalid Parameters
-2	Logical busy or timeout
-3	Out of memory
-4	FICON process is coming up
-5	FICON Database cannot find any mroe entries
-6	FICON has encountered an internal error

A nonzero value indicates that the operation has failed. If this command fails, the system displays the appropriate message on the screen. If the command is successful, no exit status value is returned.

## See Also

[ficonShow](#)

## ficonHelp

Displays a list of FICON support commands.

---

**Note:** Although referenced in this guide, HP does not support FICON at this time.

---

### Synopsis

`ficonHelp`

### Availability

all users

### Description

Use this command to display a list of FICON support commands, with descriptions.

### Operands

none

**Example**

To display a list of FICON commands:

```
switch:admin> ficonhelp

ficonshow RNID           Displays all registered node identification data
                        within the local switch.

ficonshow RNID fabric    Displays all registered node identification data
                        from all ficon devices registered with the switch
                        within the fabric.

ficonshow LIRR           Displays all LIRR local entries for the LIRR
                        database.

ficonshow LIRR fabric    Displays all LIRR entries within the fabric.

ficonshow SwitchRNID     Displays node identification data for the local
                        switch.

ficonshow SwitchRNID fabric Displays node identification data for each
                        switch defined in the fabric.

ficonshow RLIR           Displays all RLIR entries for the local RLIR
                        database.

ficonshow RLIR fabric    Displays ll RLIR entries within the fabric.

ficonshow ILIR           Displays all implicit link incidents occurred
                        within the local switch.

ficonshow ILIR fabric    Displays all implicit link incidents occurred
                        within the fabric.

ficonclear RLIR          Clears the RLIR entries from the local RLIR
                        database

ficonclear RNID          Clears the not current RNID entries from the local
                        RNID database.
```



# ficonShow

Displays the contents of the specified FICON management database.

**Note:** Although referenced in this guide, HP does not support FICON at this time.

## Synopsis

```
ficonshow RNID [fabric]
ficonshow LIRR [fabric]
ficonshow SwitchRNID [fabric]
ficonshow RLIR [fabric]
ficonshow ILIR [fabric]
```

## Availability

all users

## Description

Use this command to display the contents of a FICON management database. The **ficonShow** database operand is the name of the database to display. If the fabric operand is absent, the command displays the members of the named database that are local to the switch on which the command was issued. If the fabric operand is present, it must be entered exactly as shown, and this specifies that all members are displayed, both local and remote.

The following information might be displayed, depending on which database you enter and which operands you use with the command:

Domain	Displays the domain ID
Fabric WWN	Displays the fabric WWN

Flag	<p>Indicates if the node is valid, not valid, or not current. Flag values are as follows:</p> <ul style="list-style-type: none"><li>■ 0x00 Indicates node ID of the storage port for RNID switch for SwitchRNID is valid.</li><li>■ 0x10 Indicates node ID of the channel port is valid.</li><li>■ 0x20 Indicates the node ID of the storage port is not current.</li><li>■ 0x30 Indicates the node ID of the channel port is not current.</li><li>■ 0x40 Indicates the node ID of the storage port for RNID switch for RLIR is not valid.</li><li>■ 0x50 Indicates the node ID of the channel port is not valid.</li></ul>
Fmt	Displays the record-registration format
FRU Failure Description	<p>Indicates the FRU failure type as one of the following:</p> <p>Indicates the FRU failure type as one of the following:</p> <ul style="list-style-type: none"><li>■ WWN card [unit number]</li><li>■ Power Supply [unit number]</li><li>■ Hardware Slot [unit number]</li><li>■ Blower [unit number]</li></ul>
FRU Part Number	Displays the FRU part number
FRU Serial Number	Displays the FRU serial number
Incident Count	Display the incident count. This number increases by 1 for each incident within the individual switch.
Link Incident Description	Same as Link Incident Type
Link Incident Type	<p>Indicates the link incident type as one of the following:</p> <ul style="list-style-type: none"><li>■ Bit-error-rate threshold exceeded</li><li>■ Loss of signal or synchronization</li><li>■ NOS recognized</li><li>■ Primitive sequence timeout</li><li>■ Invalid primitive sequence for port state</li></ul>
Listener PID	Same as PID.
Listener Port Type	Same as Port Type.

Listener Type	<p>Indicates the listener type as follows:</p> <ul style="list-style-type: none"><li>■ Conditional - This port receives a link incident record if no other recipients from the established registration list have been chosen.</li><li>■ Unconditional - This port is always chosen as a recipient of a link incident record.</li></ul>
Manufacturer	Displays the manufacturer name or code.
Model Number	Displays the model number.
Node Parameters	<p>Displays the node type for the switch in three bytes, 0xAABBCC:</p> <ul style="list-style-type: none"><li>■ Byte AA 0x20 FC-SB-2 and updates.</li><li>■ Byte BB 0x0a Switch.</li><li>■ Byte CC 0x00 Port number. It is dynamically assigned whenever a link incident occurs.</li></ul>
Parm	<p>Displays the incident node parameters type in three bytes, 0xAABBCC:</p> <p>Byte AA</p> <ul style="list-style-type: none"><li>■ 0x00 Reserved.</li><li>■ 0x20 FC-SB-2 and updates.</li><li>■ 0x40 Other FC-4s including FCP and updates.</li><li>■ 0x60 FC-SB-2 and updates and other FC-4s including FCP and updates.</li><li>■ 0x80 FC-4 support not specified.</li><li>■ 0xa0 Reserved.</li><li>■ 0xc0 Reserved.</li><li>■ 0xe0 Vendor specific.</li></ul>

## Byte BB

- 0x00 Unspecified class.
- 0x01 Direct access storage device, if it is an storage port; otherwise, not channel-to-channel capable.
- 0x02 Magnetic tape, if it is an storage port; otherwise, a reserved field for a channel port.
- 0x03 Input unit record, if it is an storage port; otherwise, a reserved field for a channel port.
- 0x04 Output unit, if it is an storage port; otherwise, a reserved field for a channel port.
- 0x05 Reserved field for a channel port.
- 0x06 Controller, if it is an storage port; otherwise, a reserved field for a channel port.
- 0x07 Terminal - Full screen if it is an storage port; otherwise, a reserved field for a channel port.
- 0x08 Terminal - Line mode if it is an storage port; otherwise, an emulated control unit support only.
- 0x09 Reserved.
- 0x10 Switch, if it is a switch device; otherwise, reserved.
- 0x0b-0xff Reserved.

## Byte CC

- 0x00 If storage CU port has registered with the switch.
- 0xID CHIPID if channel port has registered with the switch.
- 0xPN If switch has registered with the channel, PN represents the FL port number.

Part Number

Displays the switch chassis part number.

PID

Displays the 24-bit Fibre Channel port address in 0xDDAAPP format. DD is Domain ID. AA is Area ID. PP is AL\_PA ID.

Plant of  
Manufacture

Displays the manufacturer plant name or code.

Port	Displays the status of the port: Link degraded but operational. Link not operational.
Port Type	Displays the port type: U is unknown. N is N_Port. NL is NL_Port.
Protocol	Displays whether the traffic is using FICON or FCP.
Registered Node WWN	Displays the device's node World Wide Name associated with the device HBA.
Registered Port WWN	Displays the device's channel or storage CU port World Wide Name associated with the device HBA.
Sequence Number	Displays the sequence number of the self describing node.
Serial Number	Displays the switch serial number.
Switch node WWN	Displays the switch node World Wide Name.
Switch Port WWN	Displays the switch port World Wide Name.
Switch WWN	Displays the switch WWN.
Tag	Displays the physical identifier for the self-describing node interface.
TS Format	Displays the Time Server format.
Time Stamp	Displays the timestamp, expressed in date format.
Type	Same as Port Type.
Type Number	Displays the type number of the self describing node. It also describes the machine type.

## Operands

This command has the following operands:

`database`

Specify the database to display. Valid values are:

- RNID
- LIRR
- SwitchRNID
- RLIR
- ILIR

This operand is required.

`fabric`

Specify fabric to display both local and remote information. This operand must be entered exactly as fabric. This operand is optional.

## Examples

To display the local RNID database:

```
switch:admin> ficonshow rnid
{
{Fmt  Type PID      Registered Port WWN      Registered  Node WWN      flag Parm
0x18 N    0d0500 50:05:07:64:01:00:15:af 50:05:07:64:00:c1:69:ca 0x10
0x20011e
Type number:          002064
Model number:         103
Manufacturer:         IBM
Plant of Manufacture: 02
Sequence Number:      0000000169CA
tag:                  1e05
}
{Fmt  Type PID      Registered Port WWN      Registered  Node WWN      flag Parm
0x18 N    0d0900 50:05:07:64:01:40:15:af 50:05:07:64:00:c1:69:ca 0x10
0x20011f
Type number:          002064
Model number:         103
Manufacturer:         IBM
Plant of Manufacture: 02
Sequence Number:      0000000169CA
tag:                  1f09
}
{Fmt  Type PID      Registered Port WWN      Registered  Node WWN      flag Parm
0x18 N    0d0d00 50:05:07:63:00:cd:96:aa 50:05:07:63:00:c0:96:aa 0x00
0x400100
Type number:          002105
Model number:         800
Manufacturer:         IBM
Plant of Manufacture: 13
Sequence Number:      000000022802
tag:                  00ac
}
}
3 valid entries, 0 not current entries
The Local RNID database has 3 entries.
```

To display the local and remote LIRR database:

```
switch:admin> ficonshow lirr fabric
{Fmt   Type PID      Listener Port WWN          Switch Port WWN          Listener Type
0x18 N    0a0000 50:05:07:64:01:40:14:0c 20:00:00:60:69:80:0f:c8 Conditional
0x18 N    0a1000 50:05:07:64:01:40:14:02 20:10:00:60:69:80:0f:c8 Conditional
0x18 N    0a1100 50:05:07:64:01:00:14:02 20:11:00:60:69:80:0f:c8 Conditional
0x18 N    0a1200 50:05:07:64:01:40:16:13 20:12:00:60:69:80:0f:c8 Conditional
0x18 N    0a1300 50:05:07:64:01:00:16:13 20:13:00:60:69:80:0f:c8 Conditional
0x18 N    0a2000 50:05:07:64:01:40:0b:45 20:20:00:60:69:80:0f:c8 Conditional
0x18 N    0b1000 50:05:07:64:01:00:13:f6 20:10:00:60:69:80:0f:c9 Conditional
0x18 N    0b1400 50:05:07:64:01:40:0f:e6 20:14:00:60:69:80:0f:c9 Conditional
0x18 N    0b1600 50:05:07:64:01:00:0f:e6 20:16:00:60:69:80:0f:c9 Conditional
0x18 N    0b2000 50:05:07:64:01:40:13:f6 20:20:00:60:69:80:0f:c9 Conditional
0x18 N    0b2400 50:05:07:64:01:00:0f:c4 20:24:00:60:69:80:0f:c9 Conditional
0x18 N    0b2c00 50:05:07:64:01:60:09:32 20:2c:00:60:69:80:0f:c9 Conditional
0x18 N    0b2d00 50:05:07:64:01:20:09:32 20:2d:00:60:69:80:0f:c9 Conditional
0x18 N    0b2e00 50:05:07:64:01:40:0f:bb 20:2e:00:60:69:80:0f:c9 Conditional
0x18 N    0b2f00 50:05:07:64:01:00:0f:bb 20:2f:00:60:69:80:0f:c9 Conditional
0x18 N    0b3400 50:05:07:64:01:00:14:95 20:34:00:60:69:80:0f:c9 Conditional
0x18 N    0c0400 50:05:07:64:01:40:16:16 20:04:00:60:69:90:02:12 Conditional
0x18 N    0c0900 50:05:07:64:01:00:16:16 20:09:00:60:69:90:02:12 Conditional
0x18 N    0d0500 50:05:07:64:01:00:15:af 20:05:00:60:69:90:0c:71 Conditional
0x18 N    0d0900 50:05:07:64:01:40:15:af 20:09:00:60:69:90:0c:71 Conditional
}
The LIRR database has 20 entries.
```

To display the local SwitchRNID database:

```
switch:admin> ficonshow switchRNID
{
{Switch WWN          flag Parm
10:00:00:60:69:80:1e:4e 00 200a00
Type number:          002109
Model number:         M12
Manufacturer:         BRD
Plant of Manufacture: CA
Sequence Number:      0FT02X801E4E
tag:                  50ff
}
}
The Local switch RNID database has 1 entries.
```



To display the local RLIR database:

```
switch:user> ficonshow RLIR

{
  {Fmt  Type PID      Port Incident Count TS Format   Time Stamp
  0x18 N   502e00    46              1 Time server Mon Jan 13 04:29:33 2003
  Port Status:          Link not operational
  Link Failure Type:    Loss of signal or synchronization

  Registered Port WWN      Registered Node WWN      Flag  Node Parameters
  50:05:07:64:01:40:0f:ca  50:05:07:64:00:c1:69:ca  0x50  0x200105
  Type Number:            002064
  Model Number:           101
  Manufacturer:           IBM
  Plant of Manufacture:   02
  Sequence Number:        0000000169CA
  tag:                    2e00

  Switch Port WWN          Switch Node WWN          Flag  Node Parameters
  20:2e:00:60:69:80:1e:4e  10:00:00:60:69:80:1e:4e  0x00  0x200a2e
  Switch Part Number:      060-0001501-05
  Switch Serial Number:    0FT02X801E4E
  Domain:                  20480
  }
}
The local RLIR database has 1 entry.
```

To display the local ILIR database:

```
switch:user> ficonshow ILIR

{
{FRU Failure [2]: Power Supply[2] failure occurred on Mon Jan 13 12:11:38
2003

Fmt      Protocol Domain Fabric WWN              Switch WWN
0x18    FICON      80        10:00:00:60:69:33:33:33 10:00:00:60:69:80:1e:4e

FRU part number:      230000000602
FRU serial number:    FL2L0001071

{Listener Port Type Listener PID Listener Port WWN
0x502b00      50:05:07:64:01:00:15:8d
}
}
{FRU Failure [3]: Power Supply[4] failure occurred on Mon Jan 13 12:11:38
2003

Fmt      Protocol Domain Fabric WWN              Switch WWN
0x18    FICON      80        10:00:00:60:69:33:33:33 10:00:00:60:69:80:1e:4e

FRU part number:      230000000602
FRU serial number:    FL2L0001060

{Listener Port Type Listener PID Listener Port WWN
N                                0x502b00      50:05:07:64:01:00:15:8d
}
}
}

The local ILIR database has 2 entries.
```

## Exit Status

- |    |   |
|----|---|
| 0  | Successful operation (nothing displayed)    |
| -1 | Invalid Parameters                          |
| -2 | Logical busy or timeout                     |
| -3 | Out of memory                               |
| -4 | FICON process is coming up                  |
| -5 | FICON Database cannot find any mroe entries |
| -6 | FICON has encountered an internal error     |

A nonzero value indicates that the operation has failed. If this command fails, the system displays the appropriate message on the screen. If the command is successful, no exit status value is returned.

**See Also**

[ficonClear](#)

**filterTest**

Tests frame filters.

**Synopsis**

```
filtertest [-passcnt passcnt][-txports list][-scamoff  
offset][-dcamoff offset][-fdefoff offset]
```

**Availability**

admin

**Description**

Use this command to verify the ASIC frame level filtering logic including every type of filter actions:

- FLTACT\_LIST\_A Action to handle the subgroup A-based filtering.
- FLTACT\_LIST\_B Action to handle the subgroup B-based filtering.
- FLTACT\_FROZEN Action to handle the frame frozen process.
- FLTACT\_DISCARD Action to discard frame.
- FLTACT\_FORWARD Action to forward frame.

This command can be run on every port and send the frame in internal loopback mode. The filter test requires two different ports in the same quadrant because the filter logic in the transmitter port cannot work if the frame is sent directory from the embedded port.

In this test, the filter definition covers the different filtering conditions:

**Table 7: List of Filter Test Number, Definitions, and Action Types**

Number	Filter Definition	Action Type
0	unconditional match	Forward
1	unconditional match	List A
2	unconditional match	List B
3	unconditional match	Frozen
4	unconditional match	Discard
5	SCAM no match and AL_PA match	List A

**Table 7: List of Filter Test Number, Definitions, and Action Types (Continued)**

Number	Filter Definition	Action Type
6	SCAM&DCAM match and AL_PA match	List A
7	Zone A match and AL_PA match	List A
8	Zone B match and AL_PA match	List B
9	Zone A&B match and AL_PA match	List B
10	Zone A   B match and AL_PA match	Frozen
11	Zone A   B match and AL_PA match	Discard

## Operands

This command has the following operands:

<code>passcnt</code>	Specify the number of times to perform this test. The default value is 1.
<code>-txports list</code>	Specify the user port numbers to perform this test. All user ports are set in default.
<code>-scamoff offset</code>	Specify the program location to write SCAM test data in SCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.
<code>-dcamoff offset</code>	Specify the program location to write DCAM test data in DCAM memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.
<code>-fdefoff offset</code>	Specify the program location to write filter test definition data in filter definition memory. The default value is 0. The maximum offset number is set if the specified number is larger than limit.

## Example

To run a frame filter test:

```
switch:admin> filtertest -txports 3/1-3/3

Running filtertest .....
Test Complete: filtertest Pass 1 of 1
Duration 0 hr, 0 min & 2 sec (0:0:2:679).
passed.
```

## Diagnostics

When it detects failure(s), the subtest might report one or more of the following error messages:

```
DIAG-ACTTEST
DIAG-FLTINIT
DIAG-FLTRCV
DIAG-FLTXMIT
DIAG-NUMTEST
```

## See Also

[itemList](#)

## firmwareCommit

Commits switch firmware update.

### Synopsis

```
firmwareCommit
```

### Availability

admin

### Description

Use this command to commit a firmware download to a CP. This command copies an updated firmware image to both partitions and commits both partitions of a CP to an updated version of the firmware. This must be done after each firmware download and after the switch has been rebooted and a sanity check is performed to make sure the new image is fine.

For switches that have flash memory set into two equal partitions, the primary partition is the where the system boots from; the secondary partition is where a copy of the firmware is stored, in case the primary partition is damaged.

To maintain the integrity of the firmware image in the flash memory, the [firmwareDownload](#) command updates the secondary partition only. When [firmwareDownload](#) completes successfully and the CP is rebooted, the system switches the primary partition (with the old firmware) to the secondary, and the secondary partition (with the new firmware) to the primary.

The default behavior of the [firmwareDownload](#) command is to automatically run the commits switch firmware update command after the reboot. If you decide to disable the autocommit option when running [firmwareDownload](#), after the CP is rebooted, you must execute one of two commands:

- Commits switch firmware update copies the primary partition (with new firmware) to the secondary and commits the new firmware to both partitions of the CP.
- [firmwareRestore](#) copies the secondary partition (with the old firmware) to the primary and backs out of the new firmware download. The [firmwareRestore](#) command can only be run if autocommit was disabled during the firmware download.

## Operands

none

## Example

To commit a new version of the firmware:

```
switch:admin> firmwarecommit
Doing firmwarecommit now.
Please wait ...
.....
.....
.....
.....
.....

Replicating kernel image.
.....
FirmwareCommit completes successfully.
```

## See Also

[firmwareDownload](#)

[firmwareRestore](#)



## firmwareDownload

Downloads switch firmware from a remote host or local directory.

### Synopsis

```
firmwareDownload [[-sbni] host,user,pfile,passwd]
```

### Availability

admin

### Description

Use this command to download switch firmware from an FTP server or from a local (NFS) directory to the switch's nonvolatile storage area.

The new firmware is in the form of RPM packages with names defined in *pfile*, a binary file that contains specific firmware information (time stamp, platform code, version, and so forth) and the names of packages of the firmware to be downloaded. These packages are made available periodically to add features or to remedy defects. Contact customer support to obtain information about available firmware versions.

In the Core Switch 2/64 and SAN Director 2/128, this command by default downloads the firmware image to both CPs in rollover mode, to prevent disruption to application services. This operation depends on HA support. If HA is not available, a user can still upgrade the CPs one at a time, using **-s** option.

SAN Switch 2/32 and each CP of the Core Switch 2/64 and SAN Director 2/128 have two partitions of nonvolatile storage areas, a primary and a secondary, to store two firmware images. [firmwareDownload](#) always loads the new image into the secondary partition and swaps the secondary partition to be the primary. It then reboots the CP and activates the new image. Finally, it performs the procedure automatically, to copy the new image to the other partition, unless **-s** is used.

The command supports both noninteractive and interactive modes. If it is invoked without any command line parameters, or if there is any syntax error in the parameters, the command goes into interactive mode, in which the user is prompted for input.

---

**Note:** See the *hp StorageWorks Fabric OS Procedures User Guide* “Firmware Download” chapter for limitations when changing Fabric OS versions. When installing Fabric OS v4.2, the procedure might vary, depending on which version of the Fabric OS you are migrating from.

---

## Operands

In Core Switch 2/64, SAN Director 2/128, and SAN Switch 2/32, [firmwareDownload](#), by default, performs full install, autoreboot, and autocommit. These modes are not selectable; however, the default settings of these modes change and become selectable when single mode is enabled. The single mode can be enabled by entering option `-s` from the command line. In such a case, [firmwareDownload](#), by default, enables full install, disables autoreboot, and enables autocommit. A user can change these settings interactively or using the following options:

- `-s` Specify this operand to enable Single CP Mode. In the SAN Director 2/128, Core Switch 2/64 and SAN Switch 2/32, this mode enables a user to upgrade a single CP and to select full-install, auto-reboot, and auto-commit. In the 2 Gb SAN Switch, this mode enables a user to select full-install, auto-reboot, and auto-commit.
- `-b` Specify this operand to activate auto-reboot mode. After downloading firmware the system must be rebooted. If this operand is not specified, the user must issue the `reboot` command manually in order to activate the downloaded image. If auto-reboot mode is enabled, the switch reboots automatically after the `firmwareDownload` command has been run.
- `-n` Specify this operand to de-activate auto-commit mode. By default, after running this command and after `reboot`, the switch will perform a `firmwareCommit` command automatically. When this mode is disabled, the user needs to issue the `firmwareCommit` command manually to replicate the downloaded image from the primary partition to the secondary partition of a CP.
- `-i` Incremental upgrade mode enabled. This mode is only valid when single mode is enabled. It enables the incremental upgrade mode—the names of pack—ages in pfile is compared to that installed on the switch and only the packages whose names are different installs.

host	Specify a host server name or IP address; for example, "citadel" or "123.123.123.123". The configuration file or pfile is downloaded from this host system. If this operand is not used, the pfile is considered to be accessible through a local directory. This operand is required.
user	Specify a user name for FTP server access; for example, "jdoe". This user name is used to gain access to the host. This operand is required.
file	Specify a fully qualified path and file name; for example, /v4.2.x/release.plist. Absolute path names may be specified using forward slash (/). Relative path names create the file in the user's home directory on UNIX hosts, and in the directory where the FTP server is running on Windows hosts. This operand is required.
passwd	Specify a password. This operand is required but might be NULL.

If no operand is specified, the operation becomes interactive and you are prompted for input.

## Example

To download the firmware to an HA switch:

```
switch:admin> firmwareDownload
192.168.166.30,johndoe,/pub/dist/release.plist,12345
You can run firmwareDownloadStatus from a telnet session to
get the status of this command.

This command will cause the active CP to reset. This will
cause disruption to devices attached to both switch 0 and
switch 1 momentarily and will require that existing telnet
sessions be restarted.

Do you want to continue [Y]: y

FirmwareDownload has started in Standby CP. It may take up to 10 minutes.

And you will the following on Standby CP:

Start to install packages.....
dir #####
terminfo #####
termcap #####
glibc #####
sin #####
Write kernel image into flash.
Verification SUCCEEDED
FirmwareDownload completes successfully.
```

## Diagnostics

The following can cause the download to fail:

- Host is not known to the switch
- Host cannot be reached by the switch
- User does not have permission on host
- The pfile does not exist on host
- The pfile is not in the right format
- Package specified in the pfile does not exist
- The FTP server is not running on host
- Running firmwaredownload during POST
- A loss of power to the switch

## See Also

[firmwareCommit](#)

[firmwareDownloadStatus](#)

[firmwareRestore](#)

[firmwareShow](#)

[reboot](#)

[switchReboot](#)

[version](#)

## **firmwareDownloadStatus**

Displays the status of a firmware download.

### **Synopsis**

```
firmwaredownloadstatus
```

### **Availability**

admin

### **Description**

Use this command to display an event log that records the progress and status of the current [firmwareDownload](#) command. The event log is created by the current [firmwareDownload](#) command and is kept until another [firmwareDownload](#) command is issued. There is a timestamp associated with each event.

In a Core Switch 2/64 and SAN Director 2/128, when [firmwareDownloadStatus](#) is run, the event logs in the two CPs are synchronized. The command can be run from either CP.

### **Operands**

none

## Example

To display the status of a firmware download:

```
switch:admin> firmwaredownloadstatus
[1]: Tue Jan 18 13:21:25 2005
cp1: FirmwareDownload has started on Standby CP. It may take up to 10 minutes.

[1]: Tue Jan 18 13:21:35 2005
cp1: FirmwareDownload has completed successfully on Standby CP.

[2]: Tue Jan 18 13:21:37 2005
cp1: Standby CP reboots.

[3]: Tue Jan 18 13:24:44 2005
cp1: Standby CP boots up.

[4]: Tue Jan 18 13:24:45 2005
cp1: Standby CP booted up with new firmware.

<output truncated>

[9]: Tue Jan 18 13:33:54 2005
cp0: Standby CP booted up with new firmware.

[10]: Tue Jan 18 13:33:56 2005
cp0: Firmwarecommit has started on both Active and Standby CPs.

[11]: Tue Jan 18 13:38:29 2005
cp0: FirmwareCommit has completed successfully on Active CP.

[12]: Tue Jan 18 13:38:30 2005
cp0: FirmwareDownload has completed successfully.
```

## See Also

[firmwareCommit](#)  
[firmwareDownload](#)  
[firmwareRestore](#)  
[firmwareShow](#)

## firmwareRestore

Restores the former active firmware image.

### Synopsis

firmwarerestore

### Availability

admin

### Description

Use this command to restore the former active firmware image. This command can only be run if autocommit was disabled during the [firmwareDownload](#).

After a [firmwareDownload](#) and a [reboot](#) (with autocommit disabled), the downloaded firmware becomes active. If you then do not want to commit the firmware and want to restore the former firmware, run [firmwareRestore](#). After running [firmwareRestore](#), you can run [firmwareDownload](#) again.

This command reboots the system and makes the former firmware active. After reboot, both primary and secondary partitions restore to the former firmware.

This command only takes action if the system is booted after a [firmwareDownload](#); otherwise, it returns with an error code.

### Operands

none

### Example

To restore the former active firmware image:

```
switch:admin> firmwarerestore
Restore old image to be active ...
Restore both primary and secondary image after reboot.
The system is going down for reboot NOW !!
Broadcast message from root (ttyS0) Fri Oct 26 23:48:54 2001...

Doing firmwarecommit now.
Please wait ...
```

## See Also

[firmwareCommit](#)

[firmwareDownload](#)



## **firmwareShow**

Displays the Fabric OS versions on both partitions of the local and remote CPs.

### **Synopsis**

```
firmwareshow
```

### **Availability**

admin

### **Description**

Use this command to display the Fabric OS versions on primary and secondary partitions on the local CP and on the remote CP. This command identifies each CP as active or standby and identifies the slot number for each CP.

If there is only one CP available, the command displays the Fabric OS versions for the primary and secondary partitions on that CP.

### **Operands**

none

### **Example**

To display the firmware version of a 2 Gb SAN Switch:

```
switch:admin> firmwareshow
Primary partition:      v4.1.0
Secondary Partition:    v4.1.0
```

To display the firmware version of a Core Switch 2/64:

```
switch:admin> firmwareshow
Local CP (Slot 6, CP1): Active
    Primary partition:      v4.1.0
    Secondary Partition:    v4.1.0
Remote CP (Slot 6, CP0): Standby
    Primary partition:      v4.1.0
    Secondary Partition:    v4.1.0

Note: If Local CP and Remote CP have different versions of firmware, please
retry firmwaredownload command.
```

## See Also

[firmwareDownloadStatus](#)

## fportTest

Functional test of F->N, N->F point-to-point path.

### Synopsis

```
fporttest [-nframes count][-ports itemlist][-seed  
payload_pattern][-width pattern_width][-size  
pattern_size]
```

### Availability

admin

### Description

Use this command to verify the functional operation of the switch by sending ELS ECHO frames from the switch F\_Port transmitter and receiving ELS ECHO ACC from the N\_Port device into the F\_Port receiver. This exercises all the switch components, from the main board, to the SFP, to the fiber cable, to the SFPs (of the N\_Port devices and the switch F\_Port), and back to the main board.

The cables and SFPs connected should be of the same technology; that is, a short wavelength SFP (switch) port is connected to another short wavelength SFP (device) port using a short wavelength cable, a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs rapidly flicker green while the test is running.

The test method is as follows:

1. Determine which ports are F\_Ports.
2. Create an ELS\_ECHO frame with payload size, data pattern build in or payload size, data pattern.
3. Transmit frame F through the F\_Port, with D\_ID, to the N\_Port device.
4. Wait for the N\_Port device to respond ECHO ACC.
5. Compare ECHO data transmitted to ECHO data received.
6. Repeat steps 3 through 5 for all ports present until either the number of frames requested is reached, or all ports are marked bad.

You can specify a payload pattern to be used when executing this test. If the pattern is not user specified, then at every 30 pass, a different data type from a palette of seven is used to generate a different data pattern to create the frame. The data pattern is generated based on data type. Some data types might generate a different data pattern on every pass; other data types might not change the data pattern in every pass. These seven data types are repeated every 210 pass. The data palette is as follows:

1) CSPAT:	0x7e, 0x7e, 0x7e, 0x7e, ...
2) BYTE_LFSR:	0x69, 0x01, 0x02, 0x05, ...
3) CHALF_SQ:	0x4a, 0x4a, 0x4a, 0x4a, ...
4) QUAD_NOT:	0x00, 0xff, 0x00, 0xff, ...
5) CQTR_SQ:	0x78, 0x78, 0x78, 0x78, ...
6) CRPAT:	0xbc, 0xbc, 0x23, 0x47, ...
7) RANDOM:	0x25, 0x7f, 0x6e, 0x9a, ...

## Operands

This command has the following operands:

<code>-nframes count</code>	Specify the number of times (or number of frames per port) to execute this test. If omitted, the default value used is 10. This operand is optional.
<code>-ports itemlist</code>	Specify the ports to test. If omitted, the test will be executed on all online F_ports in the specified slot. This operand is optional.
<code>-seed payload_pattern</code>	Specify the pattern of the test packets payload. When <code>payload_pattern</code> is set to 0, all seven different data types will be used. This operand is optional.
<code>-width pattern_width</code>	Specify the width of the pattern which the user specified. When <code>payload_pattern</code> is set to 0x00, <code>pattern_width</code> will be ignored. Valid values are: 1 = byte 2 = word 4 = quad This operand is optional.
<code>-size pattern_size</code>	Specify the number of words of the test packets payload. If omitted, the default value is 512. This operand is optional.

## Example

To run `fportTest` on a switch:

```
switch:admin> fporttest -ports 1/0-1/15
Running fPortTest .....
Test Complete: "fporttest" Pass 10 of 10
Duration 0 hr, 0 min & 1 sec (0:0:0:127).
assed.
```

## Diagnostics

The following are possible error messages if failures are detected:

```
DATA
INIT
PORT_DIED
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
```

STATS\_FTX  
TIMEOUT  
XMIT

## See Also

[crossPortTest](#)  
[itemList](#)  
[loopPortTest](#)  
[portTest](#)  
[spinFab](#)

## fruReplace

Interactive interface to replace a field replaceable unit (FRU).

### Synopsis

```
fruReplace FRUtype
```

### Availability

admin

### Description

Use this command to guide you in replacing a FRU. The command automatically performs the necessary backup and restore (steps to accommodate the replacement).

### Operands

This command has the following operand:

-FRUtype

Specify the type of hardware component being replace. For Fabric OS v4.1.x and v4.2.x, "WWN" is the only supported operand, specifying the replacement of the WWN card.

## Example

To replace the World Wide Name card:

```
switch:admin> frureplace wwn
This is the WWN card hot swap interface.
Continuing from this point will require
the whole process to be completed.
If this process is not complete due to a
power cycle, or CP failover, please follow
the recovery procedure in
Core Switch WWN Card Removal and
Replacement document.
Do you wish to continue [y/n]? y

Backing up WWN card data, please
wait about 25 seconds for further
instruction.

Please install the new FRU now.

If this session lost for any reason,
please re-enter the frureplace command and
follow the instructions to complete the
operation.

Please enter the word `continue' after the
new WWN card has been installed: continue
Restoring the information to the
replacement FRU now, please wait about
20 seconds to complete
Verifying the replacement FRU now...
WWN card hot swap is now complete.
FRU replacement completed successfully!
```



## fspfShow

Displays Fibre Channel Shortest Path First (FSPF) protocol information.

### Synopsis

```
fspfShow
```

### Availability

all users

### Description

Use this command to display the FSPF protocol information and internal data structures. FSPF is implemented by a single task, called tFspf.

The display shows the following fields:

**Table 8: Display Fields**

Field	Description
version	Version of FSPF protocol.
domainID	Domain number of local switch.
switchOnline	State of the local switch.
domaininvalid	Domain of the local switch is currently confirmed.
isl_ports	Bit map of all E_Ports.
trunk_ports	Bit map of all the trunk ports.
f_ports	Bit map of all the Fx_Ports.
seg_ports	Bit map of all the segmented ports.
active_ports	Bit map of all the ONLINE ports.
minLSArrival	FSPF constant.
minLSInterval	FSPF constant.
LSoriginCount	Internal variable.
startTime	Start time of tFspf task (milliseconds from boot).
fspfQ	FSPF input message queue.
fabP	Pointer to fabric data structure.

**Table 8: Display Fields (Continued)**

Field	Description
agingTID	Aging timer ID.
agingTo	Aging time out value, in milliseconds.
lSrDlyTID	Link State Record delay timer ID.
lSrDelayTo	Link State Record delay time out value, in milliseconds.
lSrDelayCount	Counter of delayed Link State Records.
ddb_sem	FSPF semaphore ID.
event_sch	FSPF scheduled events bit map.
lSrRefreshCnt	Internal variable.

**Operands**

none

## Example

To display FSPF protocol information:

```
switch:admin> fspfshow

version           = 2
domainID          = 131
switchOnline      = TRUE
domainValid       = TRUE
isl_ports[0]      = 0x00000060
isl_ports[1]      = 0x00000060
isl_ports[2]      = 0x00000060
isl_ports[3]      = 0x00000060
trunk_ports[0]    = 0x00000090
trunk_ports[1]    = 0x00000090
trunk_ports[2]    = 0x00000090
trunk_ports[3]    = 0x00000090
f_ports[0]        = 0x7fffffff0f
f_ports[1]        = 0x7fffffff0f
f_ports[2]        = 0x7fffffff0f
f_ports[3]        = 0x7fffffff0f
seg_ports[0]      = 0x00000000
seg_ports[1]      = 0x00000000
seg_ports[2]      = 0x00000000
seg_ports[3]      = 0x00000000
active_ports[0]   = 0x7fffffff
active_ports[1]   = 0x7fffffff
active_ports[2]   = 0x7fffffff
active_ports[3]   = 0x7fffffff
minLSArrival      = 3
minLSInterval     = 5
LSoriginCount     = 0
startTime         = 32140
fspfQ              = 0x1006a638
fabP               = 0x1006a628
agingTID          = 0x1007f500
agingTo           = 10000
lsrDlyTID         = 0x1007f558
lsrDelayTo        = 5000
lsrDelayCount     = 508
ddb_sem           = 0x1006a700

fabP:
event_sch         = 0x0
```

## See Also

[bcastShow](#)  
[topologyShow](#)  
[urouteShow](#)

## fwAlarmsFilterSet

Enables or disables alarms for Fabric Watch.

### Synopsis

```
fwAlarmsFilterSet [mode]
```

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to configure alarm filtering for Fabric Watch. By turning off the alarms, all non-environment class alarms are suppressed. By turning on the alarms, all class alarms are generated.

### Operands

This command has the following operand:

mode	Specify 1 to enable the alarms, 0 to disable the alarms. If no operand is specified, the default value is 0 (alarms are deactivated). This operand is optional.
------	---

### Example

To enable alarms in Fabric Watch:

```
switch:admin> fwalarmsfilterset
FW: Alarms are disabled
switch:admin> fwalarmsfilterset 1
FW: Alarms are enabled
```

### See Also

[fwAlarmsFilterShow](#)

## fwAlarmsFilterShow

Displays alarm filtering for Fabric Watch.

### Synopsis

fwAlarmsFilterShow

### Availability

all users

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to display whether alarm filtering is enabled or disabled.

### Operands

none

### Example

To display the status of alarm filtering in Fabric Watch:

```
switch:admin> fwAlarmsFilterShow
FW: Alarms are enabled
switch:admin> fwAlarmsFilterShow
FW: Alarms are disabled
```

### See Also

[fwAlarmsFilterSet](#)

## fwClassInit

Initializes all classes under Fabric Watch.

### Synopsis

fwClassInit

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to initialize all classes under Fabric Watch. The command should only be used after installing a Fabric Watch license to start licensed Fabric Watch classes.

### Operands

none

### Example

To initialize all classes under Fabric Watch:

```
switch:admin> fwclassinit
fwClassInit: Fabric Watch is updating...
fwClassInit: Fabric Watch has been updated
```

### See Also

[fwConfigReload](#)

[fwConfigure](#)

[fwShow](#)

## fwConfigReload

Reloads the Fabric Watch configuration.

### Synopsis

fwConfigReload

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to reload the Fabric Watch configuration. This command should only be used after downloading a new Fabric Watch configuration file from a host.

### Operands

none

### Example

To reload the saved Fabric Watch configuration:

```
switch:admin> fwConfigReload
fwConfigReload: Fabric Watch configuration reloaded.
```

### See Also

[configDownload](#)

[configUpload](#)

[fwClassInit](#)

[fwConfigure](#)

[fwShow](#)

## fwConfigure

Displays and modifies the Fabric Watch configuration and status.

### Synopsis

fwConfigure

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to display and modify threshold information for the Fabric Watch configuration. Switch elements monitored by Fabric Watch are divided into classes, which are further divided into areas. In addition, each area can include multiple thresholds.

The Fabric Watch classes and areas are provided in the following list:

**Table 9: fwConfigure Fabric Watch Classes and Areas**

Class	Area
1 : Environmental class	1 : Temperature 2 : Fan 3 : Power Supply
2 : SFP class	1 : Temperature 2 : RXP 3 : TXP 4 : Current 5 : Voltage



**Table 9: fwConfigure Fabric Watch Classes and Areas (Continued)**

Class	Area
3 : Port class	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCs 7 : RXPerformance 8 : TXPerformance 9 : State Changes
4 : Fabric class	1 : E-Port downs 2 : Fabric reconfigure 3 : Domain ID changes 4 : Segmentation changes 5 : Zone changes 6 : Fabric<->QL 7 : Fabric logins 8 : SFP state changes
5 : E-Port class	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCs 7 : RXPerformance 8 : TXPerformance 9 : State Changes

**Table 9: fwConfigure Fabric Watch Classes and Areas (Continued)**

Class	Area
6 : F/FL Port (Optical) class	1 : Link loss 2 : Sync loss 3 : Signal loss 4 : Protocol error 5 : Invalid words 6 : Invalid CRCS 7 : RXPerformance 8 : TXPerformance 9 : State Changes
7 : Alpa Performance Monitor class	1 : Invalid CRCS
8 : End-to-End Performance Monitor class	1 : Invalid CRCS 2 : RXPerformance 3 : TXPerformance

**Table 9: fwConfigure Fabric Watch Classes and Areas (Continued)**

Class	Area
9 : Filter Performance Monitor class	1 : Customer Define
10 : Security class	1 : Telnet Violations 2 : HTTP Violations 3 : API Violations 4 : RSNMP Violations 5 : WSNMP Violations 6 : MS Violations 7 : Serial Violations 8 : Front Panel Violations 9 : SCC Violations 10 : DCC Violations 11 : Login Violations 12 : Invalid Timestamps 13 : Invalid Signatures 14 : Invalid Certificates 15 : SLAP Failures 16 : SLAP Bad Packets 17 : TS Out of Sync 18 : No-FCS 19: Incompatible Security DB 20 : Illegal Command
11 : Switch Availability Monitor class	1 : Total Down time 2 : Total Up time 3 : Duration of Occurrences 4 : Frequency of Occurrences

**Operands**

none

## Example

To display the Fabric Watch status for temperature under the Environmental class:

```
switch:admin> fwConfigure

1 : Environment class
2 : SFP class
3 : Port class
4 : Fabric class
5 : E-Port class
6 : F/FL Port (Optical) class
7 : Alpa Performance Monitor class
8 : End-to-End Performance Monitor class
9 : Filter Performance Monitor class
10 : Security class
11 : Switch Availability Monitor class
11 : Quit
Select a class => : (1..11) [11] 1

1 : Temperature
2 : Fan
3 : Power Supply
4 : return to previous page

Select an area => : (1..4) [4] 1
```

Index	ThresholdName	Status	CurVal	LastEvent	LastEventTime	LastVal	LastState
1	envTemp001	enabled	40 C				
	inBetween		36 C	23:04:42 on	10/01/2002		Normal
2	envTemp002	enabled	42 C				
	inBetween		37 C	23:04:42 on	10/01/2002		Normal
3	envTemp003	enabled	27 C				
	inBetween		26 C	23:04:42 on	10/01/2002		Normal
4	envTemp004	enabled	40 C				
	inBetween		36 C	23:04:42 on	10/01/2002		Normal
5	envTemp005	enabled	42 C				
	inBetween		37 C	23:04:42 on	10/01/2002		Normal

```

1 : refresh
2 : disable a threshold
3 : enable a threshold
4 : advanced configuration
5 : return to previous page
Select choice => : (1..5) [5]
```

## See Also

[fwClassInit](#)

[fwConfigReload](#)

[fwShow](#)

## fwFruCfg

Displays or modifies FRU state alert configuration.

### Synopsis

```
fwFruCfg
```

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to configure FRU states and actions. Based on these configuration settings, Fabric Watch generates action when an FRU state changes. To configure email alerts, use [fwMailCfg](#).

### Operands

none

## Example

To change FRU state alert configuration:

```
switch:admin> fwFruCfg
 1 : Slot
 2 : Power Supply
 3 : Fan
 4 : WWN
 5 : Configure All
 6 : Set All to Default
 7 : Quit
Select an item => : (1..7) [7] 2

Id      Label              Status      State      Alarm      Freq
=====
1      Power Supply #1    enable      1          0          1
2      Power Supply #2    enable      8          16         1

1 : change fru alarm state      5 : change fru status
2 : change fru alarm level     6 : apply fru configuration
3 : change alarm frequency     7 : cancel fru configuration changes
4 : change fru timebase       8 : return to previous page

Select Id => : (1..8) [8] 1
Up-8, On-16, Off-32, Faulty-64
Enter fru alarm state => : (1..127) [1] 32

Id      Label              Status      State      Alarm      Freq
=====
1      Power Supply #1    enable      1          0          1
2      Power Supply #2    enable      32         0          1

1 : change fru alarm state      5 : change fru status
2 : change fru alarm level     6 : apply fru configuration
3 : change alarm frequency     7 : cancel fru configuration changes
4 : change fru timebase       8 : return to previous page
Select choice => : (1..8) [8] 8
```

## See Also

[fwConfigure](#)

[fwMailCfg](#)

## fwHelp

Displays Fabric Watch command information.

### Synopsis

fwHelp

### Availability

all users

### Description

Use this command to display the commands that configure Fabric Watch.

### Operands

none

### Example

To display a summary of Fabric Watch commands:

```
switch:admin> fwhelp

fwAlarmsFilterSet      Configure alarms filtering for Fabric Watch
fwAlarmsFilterShow     Show alarms filtering for Fabric Watch
fwClassInit            Initialize all Fabric Watch classes
fwConfigure            Configure Fabric Watch
fwConfigReload         Reload Fabric Watch configuration
fwSetToCustom          Set boundary & alarm level to custom
fwSetToDefault         Set boundary & alarm level to default
fwShow                Show thresholds monitored by Fabric Watch
fwMailCfg             Configure Fabric Watch Email Alert
fwFruCfg              Configure FRU state and notification
fwSamShow             Show availability monitor information
switchStatusPolicyShow Show switch status policy parameters
switchStatusPolicySet Set switch status policy parameters
switchStatusShow      Show overall switch status
tempShow              Show switch temp readings
sensorShow            Show sensor readings
```

## fwMailCfg

Configures email alerts in Fabric Watch.

### Synopsis

```
fwMailCfg
```

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to display or modify the configuration and status of the Fabric Watch email alert in the switch.

Switch elements monitored by Fabric Watch are divided into classes, and email alerts are based on the classes. Each class can configure one email address as the alert message's receiver.

For an email alert to function correctly, add the CP0 and CP1 IP addresses and hostnames to DNS and also set the domain name and name server. The [ipAddrShow](#) and [dnsConfig](#) commands can be used to set and check this information.



**Example**

To configure an email address recipient for the SFP class in Fabric Watch and then enable email alerts:

```
switch:admin> fwMailCfg
1 : Show Mail Configuration Information
2 : Disable Email Alert
3 : Enable Email Alert
4 : Send Test Mail
5 : Set Mail Address for Email Alert
6 : Quit
Select an item => : (1..6) [6] 5

Mail Config Menu
-----
1 : Environment class
2 : SFP class
3 : Port class
4 : Fabric class
5 : E-Port class
6 : F/FL Port (Copper) class
7 : F/FL Port (Optical) class
8 : Alpa Performance Monitor class
9 : End-to-End Performance Monitor class
10 : Filter Performance Monitor class
11 : Security class
12 : Switch Availability Monitor class (SAM)
13 : Quit
Select an item => : (0..13) [13] 2

---<continued on next page>---
```

```
Committing configuration...done.  
Mail To: [jonDoe@bogus.com] fvaless@bogus.com  
Committing configuration...done.  
Committing configuration...done.
```

Email Alert configuration succeeded!

```
1 : Show Mail Configuration Information  
2 : Disable Email Alert  
3 : Enable Email Alert  
4 : Send Test Mail  
5 : Set Recipient Mail Address for Email Alert  
6 : Quit  
Select an item => : (1..6) [6] 3
```

Mail Enable Menu

```
1 : Environment class  
2 : SFP class  
3 : Port class  
4 : Fabric class  
5 : E-Port class  
6 : F/FL Port (Copper) class  
7 : F/FL Port (Optical) class  
8 : Alpha Performance Monitor class  
9 : End-to-End Performance Monitor class  
10 : Filter Performance Monitor class  
11 : Security class  
12 : Switch Availability Monitor class (SAM)  
13 : quit
```

```
Select an item => : (1..13) [13] 2  
Committing configuration...done.
```

Email Alert is enabled!

```
1 : Show Mail Configuration Information  
2 : Disable Email Alert  
3 : Enable Email Alert  
4 : Send Test Mail  
5 : Set Recipient Mail Address for Email Alert  
6 : Quit  
Select an item => : (1..6) [6] 6
```

**See Also**[fwClassInit](#)[fwConfigReload](#)[fwConfigure](#)[fwShow](#)

## **fwsamshow**

Displays switch availability monitor information.

### **Synopsis**

fwsamshow

### **Availability**

all users

---

**Note:** This command requires a Fabric Watch license.

---

### **Description**

Use this command to display information about port availability. The information displayed includes total uptime, total downtime, number of faulty occurrences, and total percent of downtime for each port.

### **Operands**

none

Example

To display port summary information:

switch:admin> fwsamshow

Port#	Type	Total UpTime (Percent)	Total DownTime (Percent)	Number Of Occurrences (Times)	Total OffTime (Percent)
32	U_PORT	0	0	0	100
33	U_PORT	0	0	0	100
34	U_PORT	0	0	0	100
35	U_PORT	0	0	0	100
36	U_PORT	0	0	0	100
37	U_PORT	0	0	0	100
38	U_PORT	0	0	0	100
39	U_PORT	0	0	0	100
40	U_PORT	0	0	0	100
41	U_PORT	0	0	0	100
42	U_PORT	0	0	0	100
43	U_PORT	0	0	0	100
44	U_PORT	0	0	0	100
45	E_PORT	100	0	0	0
46	U_PORT	0	0	0	100
47	U_PORT	0	0	0	100
48	U_PORT	0	0	0	100
49	U_PORT	0	0	0	100
50	U_PORT	0	0	0	100
51	E_PORT	100	0	0	0
52	U_PORT	0	0	0	100
53	U_PORT	0	0	0	100
54	U_PORT	0	0	0	100
55	U_PORT	0	0	0	100
56	U_PORT	0	0	0	100
57	U_PORT	0	0	0	100
58	U_PORT	0	0	0	100
59	E_PORT	100	0	0	0
60	U_PORT	0	0	0	100
61	U_PORT	0	0	0	100
62	U_PORT	0	0	0	100
63	U_PORT	0	0	0	100

See Also

[switchShow](#)

## fwSetToCustom

Sets boundary and alarm levels to custom values.

### Synopsis

fwSetToCustom

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to set boundary and alarm levels to custom values for all classes and areas in Fabric Watch.

### Operands

none

### Example

To set alarm levels to custom values:

```
switch:admin> fwSetToCustom  
Committing configuration...done.
```

### See Also

[fwSetToDefault](#)

## fwSetToDefault

Returns boundary and alarm levels to the default values.

### Synopsis

```
fwSetToDefault
```

### Availability

admin

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to return boundary and alarm levels to defaults for all classes and areas in Fabric Watch.

### Operands

none

### Example

To return alarm levels to default values:

```
switch:admin> fwSetToDefault  
Committing configuration...done.
```

### See Also

[fwSetToCustom](#)

## fwShow

Displays the thresholds monitored by Fabric Watch.

### Synopsis

fwShow

### Availability

all users

---

**Note:** This command requires a Fabric Watch license.

---

### Description

Use this command to display the thresholds monitored by Fabric Watch.

This command can display a synopsis of thresholds for a particular class or more detailed information for an individual threshold.

---

**Note:** The `fwShow` display for a root user is different from that for an admin user. The root user can see all inactive and active thresholds, but the admin user can only see active threshold.

---

### Operands

none



## Example

To display detailed Fabric Watch information on the envFan001 threshold:

```
switch:admin> fwshow

1 : Show class thresholds
2 : Detail threshold information
3 : Quit
Select an item => : (1..3) [3] 2
Enter Threshold Name : [] envFan001

Env Fan 1:

Monitored for:      28676 ( 7:57)
Last checked:      23:32:14 on 10/09/2002

Lower bound:        2600 RPM
Upper bound:        7000 RPM
Buffer Size:        3

Value history:      3375 RPM

Raw history:        3375 RPM
                   3409 RPM <output truncated>
                   3409 RPM

Flags: 0x          40 TRIGGERED
Counter:
Access via: Function call
Address: 0x1001b650
Argument: 0x00000001

Previous: 0x00000d2f (3375)
Current: 0x00000d2f (3375)

Events:
Style: Triggered
Event 0 occurred 1 time, last at 15:34:18 on 10/09/2002
Event 1 occurred 268 times, last at 23:32:14 on 10/09/2002
* Event 5 occurred 1 time, last at 15:34:24 on 10/09/2002

Callbacks:
2 callbacks are registered for event 3:
0: 0x1001ad60 0x00000000
1: 0x1001af30 0x00000000
2 callbacks are registered for event 4:
0: 0x1001ad60 0x00000000
1: 0x1001af30 0x00000000
1 callback is registered for event 5:
0: 0x1001ad60 0x00000000

1 : Show class thresholds
2 : Detail threshold information
3 : Quit
Select an item => : (1..3) [3] 3
```

## See Also

[fwClassInit](#)

[fwConfigReload](#)

[fwConfigure](#)

**h**

Displays shell history.

**Synopsis**

h

**Availability**

all users

**Description**

Use this command to view the shell history. The shell history mechanism is similar to the UNIX Korn shell history facility. It has a built-in line editor similar to UNIX vi that enables previously typed commands to be edited. The **h** command displays the 20 most recent commands typed into the shell; the oldest commands are replaced as new ones are entered.

To edit a command, press **ESC** to access edit mode and then use vi commands. The **ESC** key switches the shell to edit mode. The **ENTER** key gives the line to the shell from either editing or input mode.

Basic vi commands are as follows:

k	get the previous shell command
j	get the next command
h	move the cursor left
l	move the cursor right
a	append
i	insert
x	delete
u	undo

**Operands**

none

## Example

To display previous shell commands:

```
switch:admin> h
1 version
2 switchShow
3 portDisable 2
4 portEnable 2
5 switchShow
```

## haDisable

Disables the High Availability feature in the switch.

### Synopsis

haDisable

### Availability

admin

### Description

Use this command to disable the High Availability feature in the switch. If the HA feature is already disabled, this command does nothing.

### Operands

none

### Example

To disable the High Availability feature:

```
switch:admin> haDisable
Disabling HA ...
Done.
```

### See Also

[haEnable](#)

## haDump

Displays information about the status of the High Availability feature in the switch.

### Synopsis

haDump

### Availability

all users

### Description

Use this command to display information about the status of the High Availability feature in the switch. This command displays the following information:

- Local CP state (slot number and CP ID)
- Remote CP state (slot number and CP ID)
- High Availability enabled/disabled
- Heartbeat up/down
- Health of standby CP:

Healthy	The Standby CP is running and the background health diagnostic has not detected any errors.
Failed	The Standby CP is running, but the background health diagnostic has discovered a problem with the blade. The logs should be checked to determine the appropriate repair action. Failover will be disabled until the Standby CP can be repaired.
- HA synchronization status:

HA State Synchronized	The system is currently fully synchronized. If a failover were necessary at this time, the failover would be non-disruptive.
HA State Not In Sync	The system is unable to synchronize the two CPs, due to the Standby CP being faulty or another system error. If a failover were to take place at this time, the Standby CP would be rebooted, and the failover will be disruptive.
- IP and Fibre Channel addresses configured for the switch.

- Additional internal HA state information, subject to change.

## Operands

none

## Example

To view information about the High Availability feature:

```
switch:admin> hadump
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy
HA enabled, Heartbeat Up, HA State synchronized
SWITCH0
Ethernet IP Address: 10.64.118.104
Ethernet Subnetmask: 255.255.240.0
Fibre Channel IP Address: 0.0.0.0
Fibre Channel Subnetmask: 0.0.0.0

SWITCH1
Ethernet IP Address: 10.64.118.105
Ethernet Subnetmask: 255.255.240.0
Fibre Channel IP Address: 0.0.0.0
Fibre Channel Subnetmask: 0.0.0.0

--- <output truncated> ---
```

## See Also

[haFailover](#)

[haShow](#)

## haEnable

Enables the High Availability feature in the switch.

### Synopsis

haEnable

### Availability

admin

### Description

Use this command to enable the High Availability feature in the switch. If the HA feature is already enabled, this command does nothing.

### Operands

none

### Example

To enable the High Availability feature in the switch:

```
switch:admin> haEnable
Enabling HA ...
Done.
switch:admin> haEnable
HA is enabled
```

### See Also

[haDisable](#)



## haFailover

Forces the failover mechanism so that the standby CP becomes the active CP.

### Synopsis

```
haFailover
```

### Availability

admin

### Description

Use this command to force the failover mechanism to occur so that the standby CP becomes the active CP. Because [haFailover](#) results in CP reboot, a warning message and confirmation are displayed. If the user confirms, the failover takes place.

On a Core Switch 2/64 and SAN Director 2/128, when HA synchronization is enabled and the CPs are in sync, if a failover is initiated, the port traffic light does not flash during the failover, even while traffic is continuing to flow.

---

**Note:** Prior to initiating an [haFailover](#), make sure that any previously executed commands have completed. It is necessary to reissue the command if it has failed, wholly or partially, due to the failover.

The SAN Switch 2/8V, SAN Switch 2/16V, and SAN Switch 2/32 switches contain a single control processor (CP), which is always the *active* CP. Core Switch 2/64 and SAN Director 2/128 switches contain both an active and a standby CP.

---

### Operands

none

## Example

To force the failover of the active CP to the standby CP in the switch:

```
switch:admin> hafailover
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy
HA enabled, Heartbeat Up, HA State synchronized

Warning: This command is being run on a control processor(CP) based system.
If the above status does not indicate HA State synchronized then this
operation will cause the active CP to reset. This will cause disruption to
devices attached to both switch 0 and switch 1 and will require that existing
telnet sessions be restarted. To just reboot a logical switch on this system,
use command switchreboot(1M) on the logical switch you intend to reboot.

Are you sure you want to reboot the active CP [y/n]? Y
```

## See Also

[haDisable](#)

[haEnable](#)

[haShow](#)

haShow

Displays control processor (CP) status.

Synopsis

haShow

Availability

all users

Description

Use this command to display control processor status, which includes:

- Local CP state (slot number and CP ID)
- Remote CP state (slot number and CP ID)
- High Availability enabled/disabled
- Heartbeat up/down
- Health of standby CP:

Healthy	The Standby CP is running and the background health diagnostic has not detected any errors.
Failed	The Standby CP is running, but the background health diagnostic has discovered a problem with the blade. The logs should be checked to determine the appropriate repair action. Fail-over will be disabled until the Standby CP can be repaired.
- HA synchronization status:

HA State Synchronized	The system is currently fully synchronized. If a fail-over were necessary at this time, the fail-over would be non-disruptive.
HA State Not In Sync	The system is unable to synchronize the two CPs, due to the Standby CP being faulty or another system error. If a fail-over were to take place at this time, the Standby CP would be rebooted, and the fail-over will be disruptive.

Operands

none

## Example

To display CP status:

```
switch:admin> haShow
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy
HA Enabled, Heartbeat Up, HA State synchronized
```

## See Also

[haDisable](#)

[haEnable](#)

[haFailover](#)

## haSyncStart

Enables HA state synchronization.

### Synopsis

hasyncstart

### Availability

admin

### Description

Use this command to enable the HA state synchronization.

### Operands

none

### Example

To enable the HA state synchronization:

```
switch:admin> hasyncstart
HA State synchronization has started
switch:admin> hashow
Local CP (Slot 6, CP1): Active
Remote CP (Slot 5, CP0): Standby, Healthy
HA enabled, Heartbeat Up, HA State synchronized
```

### See Also

[haFailover](#)

[haShow](#)

[haSyncStop](#)

## haSyncStop

Disables the HA state synchronization.

### Synopsis

hasyncstop

### Availability

admin (available only on the active CP)

### Description

Use this command to temporarily disable the HA synchronization. The next failover that takes place might be disruptive.

---

**Note:** The SAN Switch 2/8V, SAN Switch 2/16V, SAN Switch 2/16N, and SAN Switch 2/32 switches contain a single control processor (CP), which is always the *active* CP. Core Switch 2/64 and SAN Director 2/128 switches contain both an active and a standby CP.

---

### Operands

none

### Example

To disable the HA state synchronizing process:

```
Switch:admin> hasyncstop
Stop synchronize 0x228 (fabos): Switch: 0, Info FSS_ME-FORCELOG, 4, HA State
out of sync!
```

### See Also

[haFailover](#)

[haShow](#)

[haSyncStart](#)

## help

Displays help information for commands.

### Synopsis

`help [command]`

### Availability

all users

### Description

Use this command without an operand to display an alphabetical list of individual commands. At the end of the list are commands that display groups of commands; for example, [diagHelp](#) displays a list of diagnostic commands.

The list displays only commands that are available to the current user; this can vary, according to:

- Login user level
- License key
- Switch model

To access help information for a specific command, enter the command name as an operand.

### Operands

This command has the following optional operand:

<code>command</code>	Specify the command name, with or without quotation marks.
----------------------	--

### Example

To display help information for the [passwd](#) command:

```
switch:admin> help passwd
```

## See Also

[diagHelp](#)  
[fwHelp](#)  
[licenseHelp](#)  
[perfHelp](#)  
[routeHelp](#)  
[tsHelp](#)  
[zoneHelp](#)



## historyLastShow

Displays the latest history record.

### Synopsis

```
historyLastShow
```

### Availability

all users

### Description

Use this command to display the contents of the latest history log record. A history record contains three lines of information. The first line of each record contains the following data sets:

- Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (World Wide Name), or UNKNOWN.
- Object number: Slot *<nn>* (for blades), Unit *<nn>* (for everything else).
- Event: Inserted, Removed, or Invalid.
- Time of the event: at *<Dow>* *<Mon>* *<dd>* *<hh:mm:ss>* *<yyyy>*

The second and third lines of a record each contain one data set, preceded by its name:

HP Part Number*xx-yyy-yyyy-zz* or Unknown

HP Serial Number*xxxxxxxxxxxx* or Unknown

### Operands

none

## Example

To display the latest history record:

```
switch:admin> historyLastShow  
  
CP BLADE   Slot 5           Inserted at Fri Feb  7 19:11:26 2003  
Factory Part Number:      60-0001624-04  
Factory Serial Number:    FP01X602ABA  
  
Records:   100
```

## See Also

[historyShow](#)

## historyMode

Displays or sets the mode of the history log.

### Synopsis

```
historymode [mode]
```

### Availability

all users (display)  
root / factory (set)

### Description

Use this command to display or set the mode of the history buffer:

- Rotating mode: new messages overwrite the oldest messages in the log.
- First-in mode: once the log is full, all additional logs are discarded, so that the first set of logs to fill the buffer is preserved.

This command enables you to display the current history log mode and change it. It also enables you to clear the history log buffer whenever the mode is changed.

This command, with no operand, displays the current mode; with an operand specified, it sets the history mode to the new value.

### Operands

This command has the following operand:

<i>mode</i>	Specify <code>rot</code> for a rotating buffer, or <code>fi</code> for First-in mode. This operand is optional.
-------------	--

### Example

To change the history mode to first-in from rotating:

```
switch:admin> historymode  
History Mode is: Rotating.
```

## See Also

[historyLastShow](#)

[historyShow](#)

## historyShow

Displays the history log.

### Synopsis

```
historyShow
```

### Availability

all users

### Description

Use this command to display the history log. Each history record contains three lines of information.

1. The first line of each record contains the following data sets:
  - Object type: CHASSIS, FAN, POWER SUPPLY, SW BLADE (switch), CP BLADE (control processor), WWN (World Wide Name), or UNKNOWN.
  - Object number: Slot *<nn>* (for blades), Unit *<nn>* (for everything else).
  - Event: Inserted, Removed, or Invalid.
  - Time of the event: at *<Dow>* *<Mon>* *<dd>* *<hh:mm:ss>* *<yyyy>*
2. The second contains one data set, HP Part Number:
  - HP Part Number: *<xx-yyyyy-zz>* or Unknown
3. The third line contains one data set, HP Serial Number:
  - HP Serial Number: *<xxxxxxxxxxxxxx>* or Unknown

### Operands

none

## Example

To display the entire contents of the history file:

```
switch:admin> historyShow

WWN Unit 1                Removed at Mon Feb 3 19:46:56 2003
HP Part Number:          60-0001501-04
HP Serial Number:        FT03X804F84

CP BLADE Slot 5           Removed at Fri Feb 7 16:44:52 2003
HP Part Number:          60-0001604-02
HP Serial Number:        FP01X602ABA

SW BLADE Slot 5           Inserted at Fri Feb 7 18:28:23 2003
HP Part Number:          60-0001624-04
HP Serial Number:        FP01X602ABA

CP BLADE Slot 6           Inserted at Fri Feb 7 18:36:02 2003
HP Part Number:          60-0001624-04
HP Serial Number:        FP01X602964

CP BLADE Slot 6           Inserted at Fri Feb 7 19:00:24 2003
HP Part Number:          60-0001624-04
HP Serial Number:        FP01X602964

Records:  5
```

## See Also

[historyLastShow](#)

## httpCfgShow

Displays the Java plug-in version.

### Synopsis

httpCfgShow

### Availability

all users

### Description

Use this command to display the version of the Java plug-in supported by Web Tools. This command also displays the URL from which the plug-in can be downloaded.

### Operands

none

### Example

To display the Java plug-in version:

```
switch:admin> httpcfgshow
Current HTTP configuration
javaplugin.version = 1,3,1
javaplugin.homeURL = http://java.sun.com/products/plugin
```

**i**

Displays a task summary.

**Synopsis**

`i [Process ID]`

**Availability**

all users

**Description**

Use this command to display information about all of the processes or about a specific process if a process ID is supplied. One line is displayed per process. The following table explains the fields displayed with this commands.

**Table 10: Command Field Description**

Field	Description
F	Process Flags: ALIGNWARN 001 print alignment warning messages STARTING 002 being created EXITING 004 getting shut down PTRACED 010 set if ptrace (0) has been called TRACESYS 020 tracing system calls FORKNOEXEC 040 forked but didn't exec SUPERPRIV 100 used super-user privileges DUMPCORE 200 dumped core SIGNALLED 400 killed by a signal
S	Process state codes: D uninterruptible sleep (usually IO) R runnable (on run queue) S sleeping T traced or stopped Z a defunct ("zombie") process
UID	The effective user ID number of the process.



Table 10: Command Field Description (Continued)

Field	Description
PID	The process ID of the process.
PPID	The process ID of the parent process.
C	Processor utilization for scheduling.
PRI	Priority number of the process. Higher numbers mean lower priority.
NI	Nice value used in priority computation.
ADDR	Memory address of the process.
SZ	The total size of the process in virtual memory in pages.
WCHAN	The address of an event for which process is sleeping (if blank, the process is running.).
TTY	The controlling terminal of the process (? is printed for no controlling terminal).
TIME	The cumulative execution time for the process.
CMD	The command name of the process.

Operands

This command has the following operand:

taskId                      Specify the task name or task ID for the task to be displayed.

Example

To display information about process ID 433:

```
switch:admin> i 433
F   S   UID   PID  PPID  C PRI  NI ADDR  SZ  WCHAN TTY   TIME    CMD
000 S    0   433    1   0  69   0  -  1283  5c64 ?    00:00:02 fabricd
```

See Also

[diagHelp](#)  
[routeHelp](#)

## ifModeSet

Sets the link operating mode for a network interface.

### Synopsis

```
ifModeSet ["interface"]
```

### Availability

admin

### Description

Use this command to set the link operating mode for a network interface.

An operating mode is confirmed with a "y" or "yes" at the prompt. If the operating mode selected differs from the current mode, the change is saved and the command exits.

Changing the link mode is not supported for all network interfaces or for all Ethernet network interfaces. This command is only functional for the "eth0" interface.

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached might result in an inability to communicate with the system through its Ethernet interface.

For dual-CP systems, the [ifModeSet](#) command affects the CP that you are currently logged in to. To set the link operating mode on the active CP, you must issue this command on the active CP; to set the link operating mode on the standby CP, you must issue this command on the standby CP. During failover, the link operating mode is retained separately for each CP, because the physical links might be set to operate in different modes.

### Operands

This command has the following operand:

interface

Specify the name of the interface. You may specify the name with quotation marks, but using them is not required. For example, you can use either "eth0" or eth0, where eth is the network interface and 0 is the physical unit.

## Examples

To advertise all modes of operation, follow this scenario for the [ifModeSet](#) command:

```
switch:admin> ifmodeset eth0
```

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached may result in an inability to communicate with the system through its ethernet interface.

It is recommended that you only use this command from the serial console port.

Are you sure you really want to do this? (yes, y, no, n): [no] y  
Proceed with caution.

Auto-negotiate (yes, y, no, n): [no] y

Advertise 100 Mbps / Full Duplex (yes, y, no, n): [yes] y

Advertise 100 Mbps / Half Duplex (yes, y, no, n): [yes] y

Advertise 10 Mbps / Full Duplex (yes, y, no, n): [yes] y

Advertise 10 Mbps / Half Duplex (yes, y, no, n): [yes] y

Committing configuration...done.

To force 10 Mb/sec half duplex, follow this scenario for the [ifModeSet](#) command:

```
switch:admin> ifmodeset eth0
```

Exercise care when using this command. Forcing the link to an operating mode not supported by the network equipment to which it is attached may result in an inability to communicate with the system through its ethernet interface.

It is recommended that you only use this command from the serial console port.

Are you sure you really want to do this? (yes, y, no, n): [no] y  
Proceed with caution.

Auto-negotiate (yes, y, no, n): [no] n

Force 100 Mbps / Full Duplex (yes, y, no, n): [no]

Force 100 Mbps / Half Duplex (yes, y, no, n): [no]

Force 10 Mbps / Full Duplex (yes, y, no, n): [no]

Force 10 Mbps / Half Duplex (yes, y, no, n): [no] y

Committing configuration...done.

## See Also

[ifModeShow](#)

## ifModeShow

Displays the link operating mode for a network interface.

### Synopsis

```
ifModeShow ["interface"]
```

### Availability

all users

### Description

Use this command to display the link operating mode for a network interface.

### Operands

This command has the following operand:

interface	Specify the name of the interface. The interface value must be enclosed in quotation marks. You may specify the name with quotation marks, but using them is not required. For example, you can use either "eth0" or eth0, where eth is the network interface and 0 is the physical unit.
-----------	---

### Example

To display the link operating mode for the "eth0" Ethernet interface:

```
switch:admin> ifModeShow "eth)"
Link mode: negotiate 100baseTx-HD, link ok
```

### See Also

[ifModeSet](#)

**interfaceShow**

Displays FSPF interface information.

**Synopsis**

```
interfaceShow [slotnumber/] [portnumber]
```

**Availability**

all users

**Description**

Use this command to display the two data structures associated with FSPF interfaces (E\_Ports) on the switch:

- The permanently allocated Interface Descriptor Block (IDB).
- The neighbor data structure. This data structure is allocated when a switch port becomes an E\_Port. The neighbor data structure contains all the information relating to the switch that is connected to an adjacent switch.

This command displays the content of both data structures, if they have been allocated.

Use this command without specifying a port number to display the interface information for all ports on the switch (including non-E\_Ports).

The following fields are displayed:

idbP	Pointer to IDB.
nghbP	Pointer to neighbor data structure.
ifNo	Interface number.
masterPort	Port number of the trunk master port, if present, of the trunk group this port is a part of.
defaultCost	The default cost of sending a frame over the ISL connection to this interface.
cost	Cost of sending a frame over the ISL connected to this interface. A value of 1000 indicates a 1 Gb/s link. A value of 500 indicates a 2 Gb/s link.
delay	Conventional delay incurred by a frame transmitted on this ISL. A fixed value required by the FSPF protocol.

lastScn	Type of the last State Change Notification received on this interface.
lastScnTime	Time the last State Change Notification was received on this interface.
upCount	Number of times this interface came up, with respect to FSPF.
lastUpTime	Last time this interface came up.
downCount	Number of times this interface went down.
lastDownTime	Last time this interface went down.
downReason	Type of last State Change Notification that caused this interface to go down.
iState	Current state of this interface. The state can be UP or DOWN. An interface in DOWN state does not have an allocated neighbor data structure and cannot be used to route traffic to other switches.
state	Current state of this interface. This E_Port is used to route traffic to other switches only if the state is "NB_ST_FULL."
nghbCap	Neighbor capabilities. Should be 0.
nghbId	Domain ID of the neighbor (adjacent) switch.
idbNo	IDB number. Should be equal to port number
remPort	Port number on the remote switch connected to this port.
nflags	Internal FSPF flags.
initCount	Number of times this neighbor was initialized, without the interface going down.
&dbRetransList	Pointer to the database retransmission list.
&lsrRetransList	Pointer to the Link State Records (LSR) retransmission list.
&lsrAckList	Pointer to the Link State Acknowledgements (LSA) retransmission list.
inactTID	Inactivity timer ID.
helloTID	Hello timer ID.
dbRtxTID	Database retransmission timer ID.
lsrRtxTID	LSR retransmission timer ID.

<code>inactTo</code>	Inactivity time out value, in milliseconds. When this time out expires, the adjacency with the neighbor switch is broken and new paths are computed to all possible destination switches in the fabric.
<code>helloTo</code>	Hello time out value, in milliseconds. When this time out expires, a Hello frame is sent to the neighbor switch through this port.
<code>rXmitTo</code>	Retransmission time out value, in milliseconds. It is used to transmit topology information to the neighbor switch. If no acknowledgement is received within <code>rXmitTo</code> , frame is retransmitted.
<code>nCmdAcc</code>	Total number of commands accepted from the neighbor switch. Number includes Hellos, Link State Updates (LSUs) and Link State Acknowledgements.
<code>nInvCmd</code>	Number of invalid commands received from the neighbor switch. Usually commands with an FSPF version number higher than the one running on the local switch.
<code>nHloIn</code>	Number of Hello frames received from the neighbor switch.
<code>nInvHlo</code>	Number of invalid Hello frames (Hello frames with invalid parameters) received from the neighbor switch.
<code>nLsuIn</code>	Number of LSUs received from the neighbor switch.
<code>nLsaIn</code>	Number of LSAs received from the neighbor switch.
<code>attHloOut</code>	Number of attempted transmissions of Hello frames to the neighbor switch.
<code>nHloOut</code>	Number of Hello frames transmitted to the neighbor switch.
<code>attLsuOut</code>	Number of attempted transmissions of LSUs to the neighbor switch.
<code>nLsuOut</code>	Number of LSUs transmitted to the neighbor switch.
<code>attLsaOut</code>	Number of attempted transmissions of LSAs to the neighbor switch.
<code>nLsaOut</code>	Number of LSAs transmitted to the neighbor switch.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4 or 7 through 10) and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

When no slot number and port number are specified, this command displays the interface information for all ports on the switch (including non-E\_Ports).

## Example

To display FSPF interface information:

```
switch:admin> interfaceshow 9/1
idbP                = 0x1007f558

Interface 33 data structure:
nghbP               = 0x10080658
ifNo                = 33
masterPort          = 33 (self)
defaultCost         = 1000
cost                = 500
delay               = 1
lastScn             = 5
lastScnTime         = Mar 05 08:59:27.180
upCount             = 1
lastUpTime          = Mar 05 08:59:27.180
downCount           = 0
lastDownTime        = Jan 01 00:00:00.000
downReason          = 0
iState              = UP

Type <CR> to continue, Q<CR> to stop:
```



**See Also**[portShow](#)[switchShow](#)

## interopMode

Enables or disables switch interoperability with switches from other manufacturers.

### Synopsis

```
interopMode [mode]
```

### Availability

admin

### Description

Use this command to enable or disable interoperability mode for individual switches. This feature enables other manufacturers' switches to be used in the fabric.

This command must be executed on all switches in the fabric. The switch must be rebooted after changing interoperability mode. In a heterogeneous fabric, several features are not available in order to provide maximum compatibility between switches.

Domain IDs must be between 97 and 127 for successful connection to other switches. The firmware automatically assigns a valid domain ID, if necessary, when interoperability mode is enabled on the switch.

Before enabling interoperability mode, the individual fabrics should be inspected for compatibility. Zones should be inspected to ensure that they meet the zone criteria and restrictions. Remove or disable any unsupported optional features. Disable the Platform Management functions using the [msPlMgmtDeactivate](#) command.

When the switch is running in interoperability mode, the following normally configurable selections are set to values required and are no longer changeable using the [configure](#) command: Port no. zoning, Node WWN zoning, QL zoning, VC encoded address, and Secure Fabric OS.

When interoperability mode is disabled, configuration parameters are returned to their default states and can be changed using the [configure](#) command

**Note:** When you are in interoperability mode, the only type of zoning supported is port WWN zoning. That means using the device's port WWN: for example, 10:00:00:00:c9:28:c7:c6.

Zone configurations that use either physical port numbers or port IDs are not supported in interopmode. Zoning using port number uses the actual physical port numbers on the switch: for example slot 1, port 5. Zoning using port ID uses the device ID: for example, 010100.

When security is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operand:

mode	Specify 1 to enable interoperability mode; specify 0 to disable interoperability mode. This operand is optional.
------	--

If no operand is specified, the current value is displayed.

## Example

To view and then enable interoperability mode:

```
switch:admin> interopmode
InteropMode: Off

Usage: InteropMode 0|1
0: to turn it off
1: to turn it on
switch:admin> interopmode 1
done.
Interopmode is enabled.
switch:admin> reboot
```

## See Also

[configure](#)

## iodReset

Turns off the in-order delivery (IOD) option.

### Synopsis

iodReset

### Availability

admin

### Description

The IOD option is turned off by default; however, if the IOD option was turned on using [iodSet](#), this command can be used to turn it off again. Disabling IOD allows fast re-routing after a fabric topology change.

This command might cause out-of-order delivery of frames during fabric topology changes.

### Operands

none

### Example

To turn off the IOD option:

```
switch:admin> iodreset
done
```

### See Also

[iodSet](#)

[iodShow](#)

## iodSet

Enables the in-order delivery (IOD) option.

### Synopsis

iodSet

### Availability

admin

### Description

Use this command to enforce in-order delivery of frames during a fabric topology change.

In a stable fabric, frames are always delivered in order, even when the traffic between switches is shared among multiple paths. However, when topology changes occur in the fabric (for instance, a link goes down), traffic is rerouted around the failure and some frames might be delivered out of order. This command ensures that frames are not delivered out-of-order, even during fabric topology changes.

The default behavior is for the IOD option to be off.

This command should be used with care, because it can cause a delay in the establishment of a new path when a topology change occurs. Only if there are devices connected to the fabric that do not tolerate occasional out-of-order delivery of frames, should this command be used.

### Operands

none

### Example

To turn on the IOD option:

```
switch:admin> iodSet
done
```

## See Also

[iodReset](#)

[iodShow](#)

## iodShow

Displays the in-order delivery (IOD) option setting.

### Synopsis

iodShow

### Availability

all users

### Description

Use this command to display whether the IOD option is enabled or disabled.

### Operands

none

### Example

To display the current setting of the IOD option:

```
switch:admin> iodShow  
IOD is not set
```

### See Also

[iodReset](#)

[iodSet](#)

## ipAddrSet

Sets the IP address details for a switch or control processor (CP).

### Synopsis

```
ipAddrSet [-cp number][-sw number]
```

### Availability

admin

### Description

Use this command to set the IP addresses on the switch or CP.

If no option is provided, the command prints the usage. To set the CP IP address use `-cp`; to set the switch IP address use `-sw`. When setting the switch, the command prompts for the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask. When setting the CP, the command prompts for the Ethernet IP address, Ethernet subnetmask, and host name.

Valid switch and CP values depend on the platform from which the command is being run. For a nonchassis-based switch, the command ignores all the arguments.

### Operands

This command has the following options:

- |                                |   |
|--------------------------------|---|
| <code>-cp <i>number</i></code> | Valid options include <ul style="list-style-type: none"><li>■ 0 sets the Ethernet IP address, Ethernet subnetmask, gateway IP and host name of CP1</li><li>■ 1 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 1.</li></ul>   |
| <code>-sw <i>number</i></code> | Valid options include <ul style="list-style-type: none"><li>■ 0 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 0.</li><li>■ 1 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 1 (Core Switch 2/64 only).</li></ul> |



If no option is specified the command prints the usage.

### Example

To set the IP address details for logical switch number 1 in a Core Switch 2/64:

```
switch:admin> ipaddrset -sw 1
Ethernet IP Address [192.168.166.148]:
Ethernet Subnetmask [255.255.255.0]:
Fibre Channel IP Address [none]:
Fibre Channel Subnetmask [none]:
Committing configuration...Done.
OK.
```

### See Also

[ipAddrShow](#)

## ipAddrShow

Display the IP address information for a switch or control processor (CP).

### Synopsis

```
ipAddrShow [-cp number] [-sw number]
```

### Availability

all users

### Description

Use this command to display the IP addresses configured in the system.

The `-cp` option displays the CP IP address and the `-sw` option displays the switch IP addresses. For switches, the command displays the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask. For CPs, the command displays the Ethernet IP address, Ethernet subnetmask, host name, and gateway IP address.

If no option is provided, the command displays all the IP addresses configured in the system. For a nonchassis-based switch, the command ignores all the arguments. Valid values depends on the system.

### Operands

This command has the following options:

- |                                |   |
|--------------------------------|---|
| <code>-cp <i>number</i></code> | Valid options include <ul style="list-style-type: none"><li>■ 0 displays the Ethernet IP address, Ethernet subnetmask, gateway IP and host name of CP1</li><li>■ 1 displays the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical CP1 1.</li></ul>  |
| <code>-sw <i>number</i></code> | Valid options include <ul style="list-style-type: none"><li>■ 0 displays the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 0.</li><li>■ 1 sets the Ethernet IP address, Ethernet subnetmask, Fibre Channel IP address, and Fibre Channel subnetmask of logical switch 1 (Core Switch 2/64 only).</li></ul> |

If no option is specified the command prints the usage.

### Example

To display the IP address for logical switch 0 in a Core Switch 2/64 and SAN Director 2/128:

```
switch:admin> ipaddrshow -sw 0
Ethernet IP Address: 192.168.166.147
Ethernet Subnetmask: 255.255.255.0
Fibre Channel IP Address: 0.0.0.0
Fibre Channel Subnetmask: 0.0.0.0
```

### See Also

[ipAddrSet](#)

## islshow

Displays ISL information.

### Synopsis

islshow

### Availability

all users

### Description

Use this command to display the current connections and status of the ISL of each port on this switch. The WWN to which the ISL is connected, the speed of the connection, and whether this ISL is trunked are displayed.

### Operands

none

### Example

To display the ISL connections for the switch:

```
switch:admin> islshow
1: 33 -> 29    10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 4G  TRUNK
2: 39 -> 7     10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 8G  TRUNK
3: 41 -> (incompatible)
4: 47 -> (incompatible)
5: 57 -> 25    10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 4G  TRUNK
6: 60 -> 2     10:00:00:60:69:80:4f:84 switch sp: 2G  bw: 4G  TRUNK
```

### See Also

[switchShow](#)

## itemList

Lists parameter syntax information.

### Synopsis

```

<item_list> = <element> | <element> <white> <item_list>
<element> = <item> | <item> - <item>
<item> = <num> | <slot> [ <white> ] / [ <white> ] <num>
<slot> = <num>
<num> = <hex> | <int>
<int> = <int> <digit> | <digit>
<hex> = 0x <hex digit> | <hex> <hex digit>
<digit> = 0|1|2|3|4|5|6|7|8|9
<hex digit> = <digit> |A|B|C|D|E|F|a|b|c|d|e|f
<white> = *["\t\f\r ,"]

```

### Description

All kernel diagnostics have at least one item list parameter to specify which ports to test. The normal default value for this parameter is to select everything.

---

**Note:** This is not a command; rather, it is a common parameter to many commands.

---

If you want to restrict the items to be tested to a smaller set, the parameter value is an item list with the following characteristics:

- It is a comma-separated list of items.
- Each item in the list might be a single element or a range of elements indicated by a “-” character and be mixed with individual values.
- Spaces and tab stops are skipped.
- Each item might be preceded by an optional slot number and “/”. For example, “0,3,4-6,1”, “0,1,3,4,5,6”, and “0 3 4 - 6 1” each select items 0, 1, 3, 4, 5, 6, and 7.

Besides the syntax rules, there are also some grammatical restrictions on the slot numbers:

- Once specified, a slot selection applies to all items to the right of the slot selections until the next slot selection or the end of the item list. For example, “1/0 - 15” and “1/0 - 1/15” are equivalent.
- If no slot number is specified, user port lists are specified by area number. For instance, “0, 16, 32” and “1/0, 2/0, 3/0” specify the same ports on a 16-port/blade system. On that same system, “1/0, 16, 32” is not a valid list: even though it is legal syntax, the ports do not exist.
- If no slot number is specified, all lists except user port lists will use the default slot 0.
- No list type except for user port lists might specify multiple conflicting slot numbers. For instance, “1/0, 2/0, 3/0” is a valid user port list but is not valid for any other type of list.
- In the case of conflicting settings within a single item list, an error is generated, as described earlier. In the case of multiple item list parameters, the last one on the command line overrides previous settings.

The exact type of list varies, depending on the test and the parameter; however, the most common are blade ports and user ports. A list of blade ports is most commonly used by ASIC-level tests such as [cmiTest](#) or [turboRamTest](#) and represents which ports on the current blade (specified with `--slot #` parameter) are tested. A list of user ports is used by the higher-level tests, such as [spinSilk](#) or [crossPortTest](#), to specify which user-accessible external ports within the current switch (selected during telnet login) are tested. When specified in an item list, user ports might be specified by either the area portion of the ports Fibre Channel address or with slot/port notation. For nonblade systems, the port number on the silkscreen is the area number, so the two notations are identical.

The exact type of list required for any input parameter might be determined with the [diagCommandShow test](#) command. For item list parameters the parameter type will be PT\_LIST and the list type will be one of the following:

**Table 11: Object Descriptions**

Type	Grouping	Description
BPORTS	Blade	Blade ports, internal and external ports.
UPORTS	Switch	User ports, ports with external connections.
QUADS	Blade	Quadrants, group of (normally 4) ports.
CHIPS	Blade	Chips, ASICs within a blade.

Table 11: Object Descriptions (Continued)

Type	Grouping	Description
MINIS	Blade	Mini switches.
SLOTS	Chassis	Slots.
INDEX	N/A	Anything.

See Also

- [backport](#)
- [camTest](#)
- [centralMemoryTest](#)
- [cmemRetentionTest](#)
- [cmiTest](#)
- [crossPortTest](#)
- [diagCommandShow](#)
- [portLoopbackTest](#)
- [portRegTest](#)
- [spinSilk](#)
- [sramRetentionTest](#)

## killTelnet

Terminates an open telnet session.

### Synopsis

```
killtelnet
```

### Availability

admin

### Description

Use this command to terminate an open telnet session. The [killTelnet](#) command is an interactive menu-driven command. Upon invocation, it lists all the current telnet and serial port login sessions. It lists information such as the session number, login name, idle time, IP address of the connection, and timestamp of when the login session was opened. A prompt is then displayed, at which point you can specify the session number of the connection you want to terminate.



Example

To terminate an open telnet connection:

```
switch:admin> killtelnet
Collecting login information....Done
List of telnet sessions (3 found)

Session No  USER      TTY      IDLE      FROM      LOGIN@
~~~~~
0           root0      ttyS0    1:17m     -          5:13pm
1           admin0     pts/0    16.00s    192.168.130.29  6:29pm
2           admin0     pts/1    3.00s     192.168.130.29  6:31pm
~~~~~

Enter Session Number to terminate (q to quit) 1
Collecting process information... Done.
You have opted to terminate the telnet session:-
logged in as "admin0 ", from "192.168.130.29 "
since " 6:29pm" and has been inactive for "16.00s ",
the current command executed being: "-rbash ".
The device entry is: "pts/0 ".
This action will effectively kill these process(es):-
USER      PID ACCESS COMMAND
/dev/pts/0
root      12868 f.... login
root      12869 f.... login
root      12877 f.... rbash

Please Ensure (Y/[N]): y
killing session.... Done!
Collecting login information....Done
List of telnet sessions (2 found)

Session No  USER      TTY      IDLE      FROM      LOGIN@
~~~~~
0           root0      ttyS0    1:17m     -          5:13pm
1           admin0     pts/1    7.00s     192.168.130.29  6:31pm
~~~~~

Enter Session Number to terminate (q to quit) q
```

**Note:** The list of open sessions displayed with [killTelnet](#) includes the user’s current session. Make sure you do not kill your own telnet session.

## licenseAdd

Adds license keys to switch.

### Synopsis

```
licenseAdd "license"
```

### Availability

admin

### Description

Use this command to add license keys to the system.

Some features of the switch and the fabric to which it is connected are optional, licensed products. Without a license installed for such products, their services are not available.

A license key is a string of approximately 16 upper- and lowercase letters and numbers. Case is significant.

The license must be entered into the system exactly as issued. If entered incorrectly, the license might be accepted but the licensed products will not function. After entering the license, use the [licenseShow](#) command to check for correct function. If no licensed products are shown, then the license is invalid.

After entering a license, the licensed product is available immediately and the system does not need to be rebooted. There is an exception. For a trunking license to become effective, the trunk ports need to be refreshed using the commands [portDisable](#) and [portEnable](#) or the switch must be refreshed using the commands [switchDisable](#) and [switchEnable](#).

### Operands

This command has the following operand:

license	Specify a license key in quotation marks. This operand is required.
---------	---

## Example

To add a license key to the switch:

```
switch:admin> licenseadd "aBcDeFGh12345"  
adding license key "aBcDeFGh12345"  
done.
```

## See Also

[licenseRemove](#)

[licenseShow](#)

## licenseHelp

Displays commands used to administer license keys.

### Synopsis

licenseHelp

### Availability

all users

### Description

Use this command to display a list of the commands used to administer license keys.

### Operands

none

### Example

To display license commands:

```
switch:admin> licenseHelp

licenseAdd      Add a license key to this switch
licenseIdShow   Show system license ID
licenseRemove   Remove a license key from this switch
licenseShow     Show current licenses
```

### See Also

[licenseAdd](#)

[licenseIdShow](#)

[licenseRemove](#)

[licenseShow](#)

## licenseIdShow

Displays system license ID.

### Synopsis

```
licenseIdShow
```

### Availability

all users

### Description

Use this command to display the license ID of SAN Switch 2/32, Core Switch 2/64, or SAN Director 2/128 chassis.

Some features of the switch and the fabric are optional, licensed products. Without a license installed for such products, the services provided by these features are not available.

For the Core Switch 2/64, a single license enables both logical switches to use these products. The chassis is assigned a license ID from which a license is generated. Such licenses are locked and are only functional on the specific system for which they were issued.

This command displays to standard output the system license ID used for both generating and validating licenses on the system. The license ID format is eight pairs of hexadecimal values, separated by colons. Each hexadecimal value is between 00 (0) and FF (255).

---

**Note:** While the format of this identifier might be similar or even identical to other identifiers in the system, no inferences should be made about the relationships between them as they are subject to change independently of one another.

---

### Operands

none

## Example

To display the license ID:

```
switch:admin> licenseIdShow  
a4:f8:69:33:22:00:ea:18
```

## See Also

[licenseAdd](#)  
[licenseHelp](#)  
[licenseRemove](#)  
[licenseShow](#)

## licenseRemove

Removes the license key from a switch.

### Synopsis

```
licenseRemove "license"
```

### Availability

admin

### Description

Use this command to remove an existing license key from a switch. The existing license key must be entered exactly as shown by [licenseShow](#), including case.

When the key has been entered, use the [licenseShow](#) command to verify that the key has been removed and the licensed product uninstalled.

After removing a license key, the switch must be rebooted. With no license key, [licenseShow](#) displays “No licenses.”

### Operands

The following operand is required:

license	Specify the license key in quotation marks. This operand is required.
---------	---

### Example

To remove a license key from the switch:

```
switch:admin> licenseremove "aBcDeFGh12345"  
removing license-key "aBcDeFGh12345"  
Committing configuration...done.  
For license to take effect, Please reboot switch now....
```

## See Also

[licenseAdd](#)  
[licenseHelp](#)  
[licenseIdShow](#)  
[licenseShow](#)



## licenseShow

Displays current license keys.

### Synopsis

licenseShow

### Availability

all users

### Description

Use this command to display current license keys, along with a list of licensed products enabled by these keys. The message "No license installed on this switch" is displayed when no licenses are installed.

### Operands

none

### Example

To display the installed license keys on a switch:

```
switch:admin> licenseshow
aBcDeFGh12345:
  Web license
  Zoning license
  Remote Switch license
  Remote Fabric license
  Extended Fabric license
  Fabric Watch license
  Performance Monitor license
  Trunking license
  Security license
```

### See Also

[licenseAdd](#)

[licenseHelp](#)

[licenseIdShow](#)

[licenseRemove](#)

## linkCost

Sets or prints the fabric shortest path first (FSPF) cost of a link.

### Synopsis

```
linkCost [slotnumber/][portnumber][, cost]
```

### Availability

admin

### Description

Use this command to set or display the cost of an inter-switch link (ISL). The cost of a link is a dimensionless positive number. It is used by the FSPF path selection protocol to determine the path that a frame takes going from the source to the destination switch. The chosen path is the path with minimum cost. The cost of a path is the sum of the costs of all the ISLs traversed by the path. The cost of a path is also known as the "metric".

FSPF supports load sharing over a number of equal-cost paths.

Every ISL has a default cost that is inversely proportional to the bandwidth of the ISL. For a 1 Gb/sec ISL, the default cost is 1000. For a 2 Gbit/sec ISL, the default cost is 500.

All currently active ISLs have an additional suffix of E\_PORT attached to their interface numbers. If the link has a static cost assigned to it, then the link cost for that link has a suffix of STATIC attached to its link cost.

This command changes the actual link cost only; it does not affect the default cost. The [interfaceShow](#) command displays both the default and actual costs.

If no operands are specified, the command displays the actual cost of all the ISLs in the (logical) switch. Specify the [slotnumber/]portnumber operand to view the cost of that specific port. Specify the [slotnumber/]portnumber and cost operands to set the cost of a specific ISL.

Setting the cost to 0 removes a static cost from the database and reverts the cost of the link to its default value.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify the port to display or set the FSPF cost of a link. Valid values for port number vary depending on the switch type. This operand is optional.</p>
cost	<p>Specify the new cost of the link connected to the specified port number. This operand is optional.</p>

If no operands are specified, the current values for all ports on the (logical) switch are displayed.

## Example

To display the cost of a link and reset that cost:

```
switch:admin> linkcost
 9/0          500
 9/1 (E_PORT) 500
 9/2          500
 9/3          500
 9/4          500
 9/5          500
 9/6          500
 9/7 (E_PORT) 500
 9/8          500
 9/9 (E_PORT) 1000
 9/10         500
 9/11         500
 9/12         500
 9/13         500
 9/14         500
 9/15 (E_PORT) 1000

--- <output truncated> ---

switch:admin> linkcost 9/1 1000
done.
```

## See Also

[interfaceShow](#)

[lsdbShow](#)

[topologyShow](#)

[urouteShow](#)

## login

Logs in as new user

### Synopsis

login

### Availability

all users

### Description

Use this command to log in to the switch with another user name and password, without first logging out from the original session. If the user was originally connected using a telnet or rlogin session, that session is left open.

This command allows you to access commands that you cannot access at your current user level.

### Operands

none

### Example

To log in as admin from the login user:

```
switch:user> login
login: admin
Password:xxxxxx
```

### See Also

[logout](#)

## logout

Logs out from a telnet, rlogin, or serial port session.

### Synopsis

logout

### Availability

all users

### Description

Use this command to log out from a telnet, rlogin, or serial port session. Telnet and rlogin connections are closed and the serial port returns to the “login:” prompt.

The [exit](#) command is accepted as a synonym for [logout](#), as is **Ctrl-D** at the beginning of a line.

---

**Note:** If you close a telnet or sectelnet session by clicking the "X" in the upper-right corner, the window closes but the session stays open until it times out. Trying to open another session before the timeout has completed causes an error message to display.

---

### Operands

none

### Example

To log out from an rlogin session:

```
switch:admin> logout
Connection to host lost.
```

### See Also

[login](#)

## loopPortTest

Functional test of L\_Port M->M path on a loop.

### Synopsis

```
loopporttest [-nframes count][-ports itemlist][-seed  
payload_pattern][-width pattern_width]
```

### Availability

admin

### Description

Use this command to verify the operation of the switch by sending frames from port M's transmitter and looping the frames back through an external fiber cable, including all the devices on the loop, into port M's receiver. This exercises all the switch components, from the main board, to the SFP, to the fiber cable, to the SFPs (of the devices and the switch), and back to the main board.

The cables and SFPs connected should be of the same technology, meaning that a short wavelength SFPed (switch) port is connected to another short wavelength SFPed (device) port through a short wavelength cable; and a long wavelength port is connected to a long wavelength port; and a copper port is connected to a copper port.

Only one frame is transmitted and received at any one time. The port LEDs flicker green rapidly while the test is running.

The test method is as follows:

1. Determine which ports are L\_Ports.
2. Enable ports for cabled loopback mode.
3. Create a frame F of data size (1024 bytes).
4. Transmit frame F through port M, with D\_ID to the FL\_Port (AL\_PA = 0).
5. Pick up the frame from port M, the FL\_Port.
6. Check if any of the eight statistic error counters are nonzero: ENC\_in, CRC\_err, TruncFrm, FrmTooLong, BadEOF, Enc\_out, BadOrdSet, DiscC3.
7. Check if the transmit, receive, or class 3 receiver counters are stuck at some value.

8. Check if the number of frames transmitted is not equal to the number of frames received.
9. Repeat steps 3 through 8 for all ports present until either the number of frames requested is reached or all ports are marked bad.

You can specify a payload pattern to be used when executing this test. If the pattern is not specified, then at every 30 passes, a different data type is used to generate a new pattern to create the frame. The data pattern is generated based on each data type. Some data types might generate different data patterns on every pass. The data types are repeated every 210 pass.

## Operands

This command has the following operands:

<code>-nframes count</code>	Specify the number of times (or number of frames per port) to execute this test. The default value is 10.
<code>-ports itemlist</code>	Specify a list of user ports to test. By default all the user ports in the current slot are tested. See <a href="#">itemList</a> for more information on selecting ports.
<code>-seed payload_pattern</code>	Specify the seed pattern of the test packets. 1 CSPAT 0x7e, 0x7e, 0x7e, 0x7e, ... 2 BYTE_LFSR 0x69, 0x01, 0x02, 0x05, ... 3 CHALF_SQ 0x4a, 0x4a, 0x4a, 0x4a, ... 4 QUAD_NOT 0x00, 0xff, 0x00, 0xff, ... 5 CQTR_SQ 0x78, 0x78, 0x78, 0x78, ... 6 CRPAT 0xbc, 0xbc, 0x23, 0x47, ... 7 RANDOM 0x25, 0x7f, 0x6e, 0x9a, ...
<code>-width pattern_width</code>	Specify the width of the test pattern. Valid values include: 1 for byte 2 for word 3 for quad This operand is optional.



## Example

To perform a loopback port test:

```
switch:admin> loopporttest -ports 1/0-1/15

Running Loop Port Test .....
Test Complete: "loopporttest" Pass 10 of 10
Duration 0 hr, 0 min & 1 sec (0:0:0:127).
passed.
```

## Diagnostics

Following are possible error messages if failures are detected:

```
DATA
INIT
PORT_DIED
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
FTPRT_STATUS_ERR
LESSN_STATUS_ERR
MBUF_STATE_ERR
MBUF_STATUS_ERR
NO_SEGMENT
PORT_ABSENT
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_FRAME_ERR
RXQ_RAM_PERR
STATS
STATS_C3FRX
```

STATS\_FRX  
STATS\_FTX  
TIMEOUT  
XMIT

## See Also

[camTest](#)  
[centralMemoryTest](#)  
[cmemRetentionTest](#)  
[cmiTest](#)  
[crossPortTest](#)  
[itemList](#)  
[portLoopbackTest](#)  
[portRegTest](#)  
[spinSilk](#)  
[sramRetentionTest](#)

## lsdbShow

Displays the FSPF link state database.

### Synopsis

```
LSDBShow [domain]
```

### Availability

all users

### Description

Use this command to display an FSPF link state database record for switches in the fabric.

There are two types of database entries:

- The link state database entry, which is permanently allocated.
- The link state record (LSR), which is allocated when a switch is connected to the fabric.

The LSR describes the links between connected domains in a fabric. For a link to be reported in the LSR, the neighbor for that link must be in NB\_ST\_FULL state.

This command displays the content of both types of database entries, if both are present.

Without operands, this command displays the whole link state database. The display shows the following fields:

**Table 12: LSDBShow Display Fields**

Field	Description
Domain	Domain number described by this LSR. A (self) keyword after the domain number indicates LSR describes the local switch.
lsrP	Pointer to LSR.
earlyAccLSRs	Number of LSRs accepted even though they were not sufficiently spaced apart.
ignoredLSRs	Number of LSRs not accepted because they were not sufficiently spaced apart.

**Table 12: LSDBShow Display Fields (Continued)**

Field	Description
lastIgnored	Last time an LSR was ignored.
installTime	Time this LSR was installed in the database, in seconds since boot.
lseFlags	Internal variable.
uOutIfs	Internal variable
uPathCost	Internal variable.
uOldHopCount	Internal variable.
uHopsFromRoot	Internal variable.
mOutIfs	Internal variable.
parent	Internal variable.
mPathCos	Internal variable.
mHopsFromRoot	Internal variable.
lsAge	Age, in seconds, of this LSR. An LSR is removed from the database when its age exceeds 3600 seconds.
reserved	Reserved for future use.
type	Type of the LSR. Always 1.
options	Always 0.
lsId	ID of this LSR. It is identical to the domain number.
advertiser	ID (domain number) of the switch that originated this LSR.
incarn	Incarnation number of this LSR.
length	Total length (in bytes) of this LSR. Includes header and link state information for all links.
chksum	Checksum of total LSR, with exception of <b>lsAge</b> field.
linkCnt	Number of links in this LSR. Each link represents a neighbor in NB_ST_FULL state.
flags	Always 0.
LinkId	ID of this link. It is the domain number of the switch on the other side of the link.
out port	Port number on the local switch.
rem port	Port number of the port on the other side of the link.

**Table 12: LSDBShow Display Fields (Continued)**

Field	Description
cost	Cost of this link. The default cost for a 1 Gb/s link is 1000.
costCnt	Always 0.
type	Always 1.

**Operands**

This command has the following operand:

domain

Specify the domain number of the LSR to be displayed.  
This operand is optional.

## Example

To display the link state record for the local switch:

```
switch:admin> lsdbshow

Domain = 1 (self), Link State Database Entry pointer = 0x10080230
lsrP           = 0x10081210
earlyAccLSRs   = 0
ignoredLSRs    = 0
lastIgnored    = Never
installTime    = 0x12dbd46 (19774790)
lseFlags       = 0xa
uOutIfsP[0]    = 0x00000000
uOutIfsP[1]    = 0x00000000
uPathCost      = 0
uOldHopCount   = 0
uHopsFromRoot  = 0
mOutIfsP[0]    = 0x00000000
mOutIfsP[1]    = 0x00000002
parent         = 0xf0
mPathCost      = 0
mHopsFromRoot  = 0

Link State Record:
Link State Record pointer = 0x10081210
lsAge          = 151
reserved       = 0
type           = 1
options        = 0x0
lsId           = 1
advertiser     = 1
incarn         = 0x80000010
length         = 92
chksum         = 0xa58f
linkCnt = 4,   flags = 0x0
LinkId = 2, out port = 33, rem port = 29, cost = 1000, costCnt = 0, type
= 1
LinkId = 2, out port = 39, rem port = 7, cost = 500, costCnt = 0, type = 1
LinkId = 2, out port = 57, rem port = 25, cost = 500, costCnt = 0, type = 1
LinkId = 2, out port = 60, rem port = 2, cost = 500, costCnt = 0, type = 1

--- <output truncated> ---
```

## See Also

[interfaceShow](#)

[nbrStateShow](#)

**memShow**

Displays the amounts of free and used memory in a switch.

**Synopsis**

```
memshow [ -b | -k | -m ]
```

**Availability**

all users

**Description**

Use this command to display free and used memory in the switch, as well as the shared memory and buffers used by the kernel.

**Operands**

This command has the following operands:

- b Specify this operand to display memory usage in bytes.
- k Specify this operand to display memory usage in kilobytes.
- m Specify this operand to display memory usage in megabytes.

By default, memory usage is displayed in bytes.

**Example**

To view the memory usage:

```
switch:admin> memshow
              total      used      free      shared      buffers      cached
Mem:    129740800  112562176  17178624         0       139264    30396416
Swap:           0         0         0
switch:admin> memshow -m
              total      used      free      shared      buffers      cached
Mem:         123        107         16         0         0         28
Swap:         0         0         0
```

**See Also**

[saveCore](#)

## msCapabilityShow

Displays service support capability.

### Synopsis

```
mscapabilityshow
```

### Availability

all users

### Description

Use this command to query a fabric for service support capability. This command provides information on what services are supported fabric wide.

The following capabilities display:

- **Bit 0: Basic Fabric Configuration Service Supported.**  
This bit displays the fabric capability to support Management Server. This service is available on all switches. This service is described in the FC-GS MS specification.
- **Bit 1: Platform Service Supported.**  
This bit displays the fabric capability to support the Management Server Platform Service. If the service is supported, you can enable it through the `mstdenable msPlMgmtActivate` command. This service is described in the FC-GS MS specification.
- **Bit 2: Topology Discovery Service Supported.**  
This bit displays the fabric capability to support the Management Server Topology Discovery Service. If the service is supported, you can enable it through the `mstdenable all` command. This service is described in the FC-GS MS specification.
- **Bit 3: Unzoned Name Service Supported.**  
This bit displays the fabric capability to support the Unzoned Name Server. This service is described in the FC-GS MS specification.
- **Bit 4: Fabric Zone Service Supported.**  
This bit displays the fabric capability to support the Fabric Zone Service. This service is described in the FC-GS MS specification.



- **Bit 5: Fabric Lock Service Supported.**  
This service is not currently supported in switches, and defaults to 0. This service is described in the FC-GS MS specification.
- **Bit 6: Time Service Supported.**  
This bit displays the fabric capability to support the Time Service. For more information see the `tsclockserver` command. This service is described in the FC-GS MS specification.
- **Bit 7: RSCN Small Payload Supported.**  
This bit displays the fabric capability to support the RSCN Small Payload used by Name Server.
- **Bit 8: Reliable Commit Service (RCS) Supported.**  
The Reliable Commit Service (RCS) is an enhanced fabric wide commit service used by Security, Zoning, and Management Server.

To read the capabilities for a fabric, the hexadecimal value must be converted into binary. The binary value is read from right to left. A value of 1 means the switch is capable of supporting a given service; a value of 0 means the switch is not capable of supporting that service. For example, a capability value of 0x0000019f would correspond to the following values:

Capability     8 7654 3210

Binary Value 1 1 0 0 1 1 1 1 1

In the above example, only Bit 5, Fabric Lock Service, and Bit 6, Time Service, are not supported switches.

## Operands

none

## Example

To display Management Server capability on a fabric:

```
switch:admin> mscapabilityshow

Switch WWN                      Capability  Switch Name
=====
10:00:00:60:69:90:03:f0        0x0000019f "switch"*
10:00:00:60:69:90:24:f0        0x0000019f "switch123"
10:00:00:60:69:90:31:f0        0x0000008f "switch321"

Capability Bit Definitions:
  Bit 0: Basic Fabric Configuration Service Supported.
  Bit 1: Platform Service Supported.
  Bit 2: Topology Discovery Service Supported.
  Bit 3: Unzoned Name Service Supported.
  Bit 4: Fabric Zone Service Supported.
  Bit 5: Fabric Lock Service Supported.
  Bit 6: Time Service Supported.
  Bit 7: RSCN Small Payload Supported.
  Bit 8: Reliable Commit Service(RCS) Supported.
  Others: Reserved.

Done.
```

## See Also

[msPlatShow](#)  
[msPICclearDb](#)  
[msPLMgmtActivate](#)  
[msPLMgmtDeactivate](#)  
[mstdDisable](#)  
[mstdEnable](#)  
[mstdReadConfig](#)

## msConfigure

Configures the management server.

### Synopsis

msConfigure

### Availability

admin

### Description

Use this command to display and configure parameters for management server. The management server enables a management application to access and configure switches in the fabric. It is located at the Fibre Channel address, FFFFFFFAh.

If the access control list (ACL) is empty (default value), the management server is available to all systems connected in-band to the fabric. To restrict access, specify the World Wide Name (WWN) for one or more management applications; access is then restricted to those WWNs. Up to 16 maximum WWNs are supported in the ACL.

The ACL is implemented on a per-switch basis and should be configured on the switch to which the management application station is directly connected.

This command is interactive and provides the following choices:

- 0 Done
- 1 Displays the access list
- 2 Add member based on its Port/Node WWN
- 3 Delete member based on its Port/Node WWN

If a change is made, you are prompted to save the changed ACL to nonvolatile memory. The saved ACL is restored on future reboot.

---

**Note:** When security is enabled, this command cannot run on any switch, but the ACL is only displayed from the primary FCS.

---

## Operands

none

## Example

To display the management server access control list:

```
switch:admin> msConfigure

0  Done
1  Display the access list
2  Add member based on its Port/Node WWN
3  Delete member based on its Port/Node WWN
select : (0..3) [1]

MS Access List consists of (5): {
  20:01:00:60:69:00:60:10
  20:02:00:60:69:00:60:10
  20:03:00:60:69:00:60:10
  20:02:00:60:69:00:60:03
  20:02:00:60:69:00:60:15

0  Done
1  Display the access list
2  Add member based on its Port/Node WWN
3  Delete member based on its Port/Node WWN
select : (0..3) [1] 0

done ...
```

## See Also

[msCapabilityShow](#)  
[msPlatShow](#)  
[msPIClearDb](#)  
[msPLMgmtActivate](#)  
[msPLMgmtDeactivate](#)  
[mstdDisable](#)  
[mstdEnable](#)  
[mstdReadConfig](#)

## **msPlatShow**

Displays the management server platform database.

### **Synopsis**

```
msPlatShow
```

### **Availability**

all users

### **Description**

Use this command to display information from the management server platform database. The display shows the platform name and associated attributes of each object in the database.

### **Operands**

none

## Example

To display the management server platform database for a fabric:

```
switch:admin> msPlatShow
-----
Platform Name: [9] "first obj"
Platform Type: 5 : GATEWAY
Number of Associated M.A.: 1
Associated Management Addresses:
  [35] "http://java.sun.com/products/plugin"
Number of Associated Node Names: 1
Associated Node Names:
  10:00:00:60:69:20:15:71
-----
Platform Name: [10] "second obj"
Platform Type: 7 : HOST_BUS_ADAPTER
Number of Associated M.A.: 1
Associated Management Addresses:
  [30] "http://java.sun.com/products/1"
Number of Associated Node Names: 2
Associated Node Names:
  10:00:00:60:69:20:15:79
  10:00:00:60:69:20:15:75
```

## See Also

[msCapabilityShow](#)

[msPIClearDb](#)

[msPIMgmtActivate](#)

[msPIMgmtDeactivate](#)

## msPlatShowDbCb

Displays management server (MS) platform service database control block.

### Synopsis

msPlatShowDbCb

### Availability

all users

### Description

Use this command to display the control block fields associated with the platform database.

Management server is available in firmware v2.3 and above.

### Operands

none

### Example

Display the MS platform service database control block:

```
switch:admin> msplatshowdbcb
msPlDBCb.prevDList:
msPlDBCb.peerWwn == 00:00:00:00:00:00:00:00.
msPlDBCb.psPeerWwn == 00:00:00:00:00:00:00:00.
msPlDBCb.replicate == 0.
msPlDBCb.fabMaySeg == 255.
msPlDBCb.timeOutCnt == 0.
msPlDBCb.enabled == 0.
msPlDBCb.tid == (nil).
```

### See Also

[msCapabilityShow](#)

[msConfigure](#)

[msPlatShow](#)

[msPIClearDb](#)

[msPlMgmtActivate](#)

[msPlMgmtDeactivate](#)



## msPlClearDb

Clears the management server platform database on all switches in the fabric.

### Synopsis

msPlClearDB

### Availability

admin

### Description

Use this command to clear the management server platform database on all switches in the fabric. Because this operation is nonrecoverable (once issued, the database is erased), it should not be used unless it is intended to resolve a database conflict between two joining fabrics or to establish an entirely new fabric with an empty database.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To clear the management server platform database on all switches in the fabric:

```
switch:admin> msplcleardb
This will erase MS Platform Service Database in the entire fabric.

Would you like to continue this operation? (yes, y, no, n): [no] y

Request to MS Platform DB Clear operation in progress.....

*Fabric-wide MS Platform DB Clear operation in progress.....
```

## See Also

[msCapabilityShow](#)

[msPlatShow](#)

[msPlMgmtActivate](#)

[msPlMgmtDeactivate](#)

## msPlMgmtActivate

Activates the MS platform service on all switches in the fabric.

### Synopsis

msPlMgmtActivate

### Availability

admin

### Description

Use this command to activate the MS platform service on all switches in the fabric. Run the [msCapabilityShow](#) command before issuing this command. If any switch within the fabric is not capable of running the MS platform service, the [msPlMgmtActivate](#) command is rejected. When this command is issued, all the switches in the fabric will have the MS platform service enabled.

Once activated, even in the event of a reboot, the switch will initialize with the MS platform service enabled. By default, the MS platform service is disabled.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To activate MS platform service on all switches in the fabric:

```
switch:admin> msplmgmtactivate  
  
Request to activate MS Platform Service in progress.....  
  
*Completed activating MS Platform Service in the fabric!
```

## See Also

[msCapabilityShow](#)

[msPlatShow](#)

[msPIClearDb](#)

[msPlMgmtDeactivate](#)

## msPlMgmtDeactivate

Deactivates the MS platform service on all switches in the fabric.

### Synopsis

```
msPlMgmtDeactivate
```

### Availability

admin

### Description

Use this command to deactivate the MS platform service on all switches in the fabric. This command deactivates the MS platform service on each switch in the fabric and commits the changes to the nonvolatile storage of each switch.

Once deactivated, even in the event of a reboot, the switch initializes with the MS platform service disabled. By default, the MS platform service is disabled.

---

**Note:** When security is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

## Example

To deactivate the MS platform service on all switches in the fabric:

```
switch:admin> msplmgmtdeactivate  
MS Platform Service is currently enabled.  
This will erase MS Platform Service configuration information as well as  
database in the entire fabric.  
Would you like to continue this operation? (yes, y, no, n): [no] y  
Request to deactivate MS Platform Service in progress.....  
*Completed deactivating MS Platform Service in the fabric!
```

## See Also

[msCapabilityShow](#)  
[msPlatShow](#)  
[msPIClearDb](#)  
[msPIMgmtActivate](#)

## mstdDisable

Disables the management server topology discovery service.

### Synopsis

```
msTdDisable [ALL]
```

### Availability

admin

### Description

Use this command to disable the management server topology discovery service locally or fabric-wide. This command disables the topology discovery service on the local switch and commits the changes to nonvolatile memory of the local switch. If the `ALL` operand is used, the command is executed on the entire fabric.

Once disabled, even in the event of a power cycle, the switch boots up with the topology discovery service disabled.

---

**Note:** The topology discovery service requires that attached devices (including switches) support the RNID ELS command.

When security is enabled, and using the `ALL` operand, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operand:

<code>ALL</code>	Specify <code>ALL</code> to disable the Topology Discovery service on all switches in the fabric. The operand <code>ALL</code> must be in capital letters. This operand is optional.
------------------	--

## Example

To disable the management server topology discovery service locally or fabric-wide:

```
switch:admin> mstdisable
This may erase all NID entries. Are you sure? (yes, y, no, n): [no] y

Request to disable MS Topology Discovery Service in progress....
*MS Topology Discovery disabled locally.

switch:admin>
switch:admin> mstdisable ALL
This may erase all NID entries. Are you sure? (yes, y, no, n): [no] y

Request to disable MS Topology Discovery Service in progress....
*MS Topology Discovery disabled locally.
*MS Topology Discovery Disable Operation Complete!!
```

## See Also

[mstdEnable](#)

[mstdReadConfig](#)



## mstdEnable

Enables the management server topology discovery service.

### Synopsis

```
mstdEnable [ "ALL" ]
```

### Availability

admin

### Description

Use this command to enable the management server topology discovery service locally or fabric-wide. This command enables the topology discovery service on the local switch and commits the changes to nonvolatile memory of the local switch. If the operand `ALL` is used, then the command is executed on the entire fabric.

---

**Note:** The topology discovery service requires that attached devices (including switches) support the RNID ELS command.

When security is enabled, and using the `ALL` operand, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operand:

<code>ALL</code>	Specify <code>ALL</code> to enable the topology discovery service on all switches in the fabric. The operand <code>ALL</code> must be in capital letters. This operand is optional.
------------------	---

## Example

To enable the management server topology discovery service locally or fabric-wide:

```
switch:admin> mstdenable

Request to enable MS Topology Discovery Service in progress....
*MS Topology Discovery enabled locally.

switch:admin>
switch:admin> mstdenable ALL

Request to enable MS Topology Discovery Service in progress....
*MS Topology Discovery enabled locally.
*MS Topology Discovery Enable Operation Complete!!
```

## See Also

[mstdDisable](#)

[mstdReadConfig](#)

## mstdReadConfig

Displays the status of management server topology discovery service.

### Synopsis

mstdReadConfig

### Availability

all users

### Description

Use this command to check whether or not the management server topology discovery service is enabled.

### Operands

none

### Example

To display the status of the topology discovery service:

```
switch:admin> mstdreadconfig  
*MS Topology Discovery is enabled.
```

### See Also

[mstdDisable](#)

[mstdEnable](#)

## myid

Displays the current login session details.

### Synopsis

myid

### Availability

admin

### Description

Use this command to display the status of the system and the login session details.

The login session gives details of the following:

- CP/switch (or console/serial port) used to log in
- The IP address of the current login session for telnet or the name of the current console port or the serial port (if modem login used)
- The current CP's mode (Active, Standby, or Unknown)
- The current system status (Redundant, Non-Redundant, or Unknown).

### Operands

none

### Example

To display current login information:

```
switch:admin> myid
Current Switch: switch
Session Detail: switch (123.123.123.123) Active Redundant
```

### See Also

[version](#)

**nbrStateShow**

Displays FSPF neighbor's state.

**Synopsis**

```
nbrStateShow [slotnumber/] [portnumber]
```

**Availability**

all users

**Description**

Use this command to display information about neighbors to the local switch, or information about a specific neighbor if a port number is supplied. A neighbor is a switch that is directly attached to the local switch. The following fields display:

Local Domain ID	Domain number of local switch.
Local Port	E_Port (interface) on local switch
Domain	Domain number of remote switch
Remote Port	E_Port (interface) on remote switch
State	State of the neighbor. The E_Port is used to route frames only if the neighbor is in NB_ST_FULL state.

**Operands**

This command has the following operand:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
------------	---

portnumber

Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

**Example**

To display information about switches directly connected to the local switch:

```
switch:admin> nbrstateshow 1/3

Local Domain ID: 1

Local Port      Domain      Remote Port      State
-----
          3          4          0      NB_ST_FULL
```

**See Also**

[interfaceShow](#)

# nbrStatsClear

Resets FSPF interface counters.

## Synopsis

```
nbrStatsClear [slotnumber/] [portnumber]
```

## Availability

admin

## Description

Use this command to reset the counters of FSPF frames transmitted and received on an interface.

Use this command with no operand to reset counters on all interfaces.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.</p>

When this command is specified with no operand, the statistics are cleared for all interfaces.

## Example

To display how to reset the counters on slot 1 port 4:

```
switch:admin> nbrstatsclear 1/4
```

## See Also

[interfaceShow](#)

[portShow](#)

[switchShow](#)



## nodeFind

Displays all the device PIDs matching a given WWN.

### Synopsis

```
nodefind "WWN"
```

### Availability

all users

### Description

Use this command to display the 24-bit Fibre Channel addresses of all the devices in the fabric that have either a port World Wide Name or a node World Wide Name matching with the given World Wide Name.

The message `No device is found with wwn xxxxxxxxx` is displayed if there is no device matching the given WWN. If matches are found, the command displays the number of devices found.

### Operands

This command has the following operand:

WWN

Specify the world wide name which can be used to match the real device's port WWN or node WWN. The world wide name must have eight colon separated fields each consisting of 1 or 2 hexadecimal digits between 0 and ff, with no spaces.

### Example

To display all the device PIDs matching a given WWN:

```
switch:admin> nodefind "50:05:07:65:05:04:08:e5"  
1 device is found with wwn 50:05:07:65:05:04:08:e5
```

## See Also

[nsAllShow](#)

[nscamShow](#)

[nsShow](#)

## nsAliasShow

Displays local name server information, with aliases.

### Synopsis

```
nsaliasshow [-r]
```

### Availability

all users

### Description

Use this command to display local name server information with the added feature of displaying the defined configuration aliases to which the device belongs.

The message `There is no entry in the Local Name Server` is displayed if there is no information in this switch, but there still may be devices connected to other switches in the Fabric. The command `nsallshow` shows information from all switches.

The display resulting from this command is identical to the command [nsShow](#), with the exception of an additional line listing to which the aliases the device belongs. If there are no defined configuration aliases for that device, no alias is displayed.

### Options

This command has the following option:

<code>-r</code>	Specify this option to replace the TTL attribute output with SCR (state change registration) information in the display. SCR is the state change registration of a device. This value indicates what type of RSCN a device registers to receive.
-----------------	--

## Example

To display local name server information with aliases:

```
switch:admin> nsaliasshow
Type Pid    COS      PortName                               NodeName TTL(sec)
*N      011200;
2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba; 60
    FC4s: FCIP
    Fabric Port Name: 20:02:00:60:69:00:68:19
    Aliases:
NL      0214e4;
3;21:00:00:fa:ce:00:21:e1;20:00:00:fa:ce:00:21:e1; na
    FC4s: FCP [STOREX  RS2999FCPH3      CD09]
    Fabric Port Name: 20:04:00:60:69:01:44:22
    Aliases: MyAlias1 MyAlias2
N       021300;
3;10:00:00:60:69:00:02:d6;20:00:00:60:69:00:02:d6; na
    Fabric Port Name: 20:03:00:60:69:01:44:22
    Aliases: DeviceAlias

The Local Name Server has 3 entries
```

## See Also

[nsAllShow](#)

[nsShow](#)

[switchShow](#)

## nsAllShow

Displays global name server information.

### Synopsis

```
nsAllShow [type]
```

### Availability

all users

### Description

Use this command to display the 24-bit Fibre Channel addresses of all devices in all switches in the fabric. If the *type* operand is supplied, only devices of specified FC-PH type are displayed. If *type* is omitted, all devices are displayed.

---

**Note:** Specifying the *type* operand causes the switch to send out a query to every switch in the fabric. On a large fabric you should *not* run a script that repeatedly issues the **nsAllShow** command with a *type* operand specified.

---

### Operands

This command has the following operand:

<i>type</i>	Specify the FC-PH type code. This operand is optional. The valid values for this operand are 0 to 255. Below are two specific FC-PH device type codes: 8 = FCP type device 4 , 5 = FC-IP type device Other FC-PH types are displayed in the format “ <i>x</i> ports supporting FC4 <i>code</i> ” where <i>x</i> is the number of ports of a type, and <i>code</i> is the FC-PH type code.
-------------	--

**Example**

To display all devices in the fabric, followed by all type 8 (SCSI-FCP) devices and all type 5 (SCSI-FCIP) devices:

```
switch:admin> nsAllShow
    12 Nx_Ports in the Fabric {
    011200 0118e2 0118e4 0118e8 0118ef 021200
    0214e2 0214e4 0214e8 0214ef
    }
switch:admin> nsAllShow 8
    8 FCP Ports {
    0118e2 0118e4 0118e8 0118ef 0214e2 0214e4 0214e8 0214ef
    }
switch:admin> nsAllShow 5
    2 FC-IP Ports in the Fabric {
    011200 021200}
```

**See Also**[nsShow](#)[switchShow](#)

**nscamShow**

Displays information about remote devices in the name server cache.

**Synopsis**

nscamshow

**Availability**

all users

**Description**

Use this command to display the local name server cache information about the devices discovered in the fabric by the name server cache manager.

The message `No Entry found!` displays if the name server cache manager does not discover new switches or new devices in the fabric.

For each remote switch found, the output of this command displays the domain number, state, revision, owner, and a list of devices for that domain number. For each device found in the devices list, the following information is displayed:

Type	U for unknown, N for N_Port, NL for NL_Port.
Pid	The 24-bit Fibre Channel address.
COS	A list of classes of service supported by the device.
PortName	The device's port Worldwide Name.
NodeName	The device's node Worldwide Name.

There might be additional lines if the device has registered FC4s supported and fabric port name.

**Operands**

none

## Example

To display all switch and device entries discovered by the name server in the fabric:

```
switch:admin> nscamshow

nscam show for remote switches:

Switch entry for 2
state   rev      owner
known v250+    0xfffc01

Device list: count 1
Type Pid   COS      PortName                      NodeName
N      021200;   2,3;10:00:00:60:69:00:ab:ba;10:00:00:60:69:00:ab:ba;
FC4s: FCIP      Fabric Port Name: 20:02:00:60:69:00:68:19
```

## See Also

[nsAllShow](#)

[nsShow](#)

[switchShow](#)



# nsShow

Displays local name server information.

## Synopsis

```
nsShow [-r]
```

## Availability

all users

## Description

Use this command to display local name server information, including information about devices connected to this switch, and cached information about devices connected to other switches in the fabric.

The following message is displayed if there is no information in this switch:

There is no entry in the Local Name Server

There still might be devices connected to other switches in the fabric. The [nsAllShow](#) command displays information from all switches. Each line of output displays:

*	Indicates a cached entry from another switch.
Type	U for unknown, N for N_Port, NL for NL_Port.
PID	24-bit Fibre Channel address.
COS	List of classes of service supported by device.
PortName	Device port World Wide Name.
NodeName	Device node World Wide Name.
TTL	Time-to-live (in seconds) for cached entries, or NA (not applicable) if the entry is local.
SCR	State change registration of the device. This is displayed if "-r" option is given.

There might be additional lines if the device has registered any of the following information (the switch automatically registers SCSI inquiry data for FCP target devices):

- FC4s supported

- IP address
- IPA
- Port and node symbolic names
- Fabric Port Name. This is the WWN of the port on the switch to which the device is physically connected.
- Hard address and/or port IP address

## Options

This command has the following option:

- |    |  |
|----|--|
| -r | Specify this option to replace the TTL attribute output with SCR (state change registration) information in the display. This value indicates what type of RSCN a device registers to receive. |
|----|--|

## Example

To display local name server information:

```
switch:admin> nsshow -r
{
Type Pid      COS      PortName                               NodeName                               SCR
NL   2016ce;    3;21:00:00:04:cf:75:78:d2;20:00:00:04:cf:75:78:d2; 0
    FC4s: FCP [SEAGATE ST318452FC 0001]
    Fabric Port Name: 20:16:00:60:69:90:03:f8

N    201700;    3;21:00:00:e0:8b:05:a3:c9;20:00:00:e0:8b:05:a3:c9; 1
    Fabric Port Name: 20:17:00:60:69:90:03:f8

The Local Name Server has 2 entries }
```

## See Also

[nsAllShow](#)  
[switchShow](#)

## **nsStatShow**

Displays local name server statistical information.

### **Synopsis**

```
nsstatshow
```

### **Availability**

all users

### **Description**

Use this command to display local name server statistic information.

### **Operands**

none

## Example

To display local name server statistical information:

```
switch:admin> nsstatshow
Name Server Statistics {
    69 invoked                2 invokedErr            0 noBuf
    Input
        0 discards            0 errors                3 accepted
        0 rejected
    Output
        0 request             0 errors                0 unexpected
        0 cached              0 timedout              0 truncated
    Req. breakdown
        0 G?_ID                0 G?_NN                 0 GID_NN
        1 GID_FT                4 GID_PT                 0 GID_FF
        0 GPN_FT                0 GNN_FT                 0 GA_NXT
        1 R?_ID                0 R?_NN                 0 other
}
Name Server to Server Communication Statistics {
    Input
        0 requests            48 accepts              4 rejects
        0 informs             0 deletions
        2 ge_id                0 ge_pn                 0 ge_nn
    Output
        52 requests            52 accepts              15 rejects
        0 informs             0 deletions              0 truncations
    Errors
        0 nobuf                0 inErrors              0 inDiscards
        0 outErrors            0 unexpected
}
```

## See Also

[nsAllShow](#)  
[nscamShow](#)  
[nsShow](#)  
[switchShow](#)

# nsZoneMember

Displays the information of all the online devices zoned with the given device.

## Synopsis

```
nszonemember OxPID
```

## Availability

all users

## Description

Use this command to display information about all the online devices zoned with the given device. Each line of output shows:

Type	U for unknown, N for N_Port, NL for NL_Port.
Pid	24-bit Fibre Channel address.
COS	List of classes of service supported by device.
PortName	Device port World Wide Name.
NodeName	Device node World Wide Name.

There might be additional lines if the device has registered any of the following information (the switch automatically registers SCSI inquiry data fro FCP target devices):

- FC4 supported
- IP address (node)
- IPA
- Port and node symbolic name (local device only)
- Fabric port name
- Hard address and/or port IP address

## Operands

This command has the following operand:

<i>OxPID</i>	Specify the port ID whose zoned devices are to be viewed. This operand is required.
--------------	---

## Example

To display the information of all the online devices zoned with the given device:

```
switch:admin> nszonemember 0x0416e2
3 local zoned members:

Type Pid    COS      PortName                               NodeName                               T
NL  041901;   2,3;10:00:00:00:c9:26:0e:ae;20:00:00:00:c9:26:0e:ae; n
Fabric Port Name: 20:09:00:60:69:50:06:78
NL  0416e2;   3;22:00:00:20:37:d9:6b:b3;20:00:00:20:37:d9:6b:b3; n
FC4s: FCP [SEAGATE ST318304FC          0005]
Fabric Port Name: 20:06:00:60:69:50:06:78
NL  0416e4;   3;22:00:00:20:37:d9:61:ac;20:00:00:20:37:d9:61:ac; n
FC4s: FCP [SEAGATE ST318304FC          0005]
Fabric Port Name: 20:06:00:60:69:50:06:78

No remote zoned members
```

## See Also

[cfgShow](#)

[nscamShow](#)

[nsShow](#)

## passwd

Changes the password for a user level.

### Synopsis

```
passwd ["user"]
```

### Availability

all users

### Description

Use this command to change the password for the user currently logged in or for another user. To change the password for a specific user, enter the command with the optional `user` operand.

The hierarchy of user levels are (from greatest access to least) root, factory, admin, and user. Typically, all fabric management should be performed by admin.

When the root password is changed, all user levels currently logged in are terminated.

If the fabric is not in secure mode, the behavior of the command is as follows:

- If you are changing your own user-level password, you are prompted to enter the old password and, if your entry is valid, the new password.
- If a you are changing another user-level password, you are prompted to enter that user level's old password and, if your entry is valid, the new password.
- If you are logged in as the root user when changing another user-level password, you are not prompted to enter the old password.
- The command is disabled until you have changed all the login passwords from the manufacture default values.

If the fabric is in secure mode, the behavior of the command is as follows:

- If you change your current login level password, you are also prompted to change the passwords of all the user levels below your current level in the user-level hierarchy. For example, if you execute this command as admin, you are prompted to change the password of user, as user is below admin in the

hierarchy. If you execute this command as root, you are prompted to change the passwords of factory, admin, and user. If the command is aborted at any point, the current passwords are not changed for any user level.

- The command can only be run on the primary FCS switch. The changed passwords will be distributed to all FCS switches. NonFCS switches will be updated if the password of the user account is changed.
- Changing the password of any user level will cause the login session of that account (if logged in) to be terminated

---

**Note:** If the Security option is enabled on the fabric, this command is disabled on all switches except the primary FCS. See the *hp StorageWorks Secure Fabric OS 4.2x User Guide* for more information.

---

A new password must follow these rules:

- Have 8 to 40 characters
- Not the same as the previous password

Use the following keys to control input:

<b>Return</b>	When entered at a prompt with no preceding input, accepts the default value (if applicable) and moves to the next prompt.
<b>Ctrl-D</b> (end of file)	When entered at a prompt with no preceding input, it terminates the command without changing password. This is valid on most computers, however, your settings could be different.

## Operands

This command has the following operand:

<code>user</code>	<p>Specify the name of the user, in quotation marks, where you want to modify the password. This operand is optional. Valid values are: Root, Factory, Admin, or User.</p> <p>You can only specify this operand when you are logged in as Root, Factory, or Admin. If you try to change the password of a user level who is higher in hierarchy (for example: Admin changing the Root password), you are prompted to enter the current password of that level. If you try to change the password of a user level who is lower in hierarchy, you are not prompted to enter the current password.</p>
-------------------	---



## Example

To change the password for the admin user:

```
switch:admin> passwd "admin"  
Changing password for admin  
Enter new password:  
Re-type new password:  
Password changed.  
Saving password to stable storage.  
Password saved to stable storage successfully.
```

## Diagnostics

When failures are detected, the subtext might report one or more of the following error messages:

"user" is not a valid user name.	You have not specified a user name that is a valid, recognized user name on the system.
Permission denied.	You do not have permission to change the login name or password specified.
Incorrect password.	You have not entered the correct password when prompted for the old password.
Password unchanged.	You have entered the carriage return special input case, choosing not to change the password.
Passwords do not match.	You have not correctly verified the new password.

## See Also

[login](#)  
[logout](#)

## pathinfo

Display routing and statistics information along a path.

### Synopsis

```
pathinfo [domain] [source_port] [destination_port] [-r]
```

### Availability

admin

### Description

This command displays detailed routing information from a source port on the local switch to a destination port on another switch. This routing information describes the exact path that a user data stream takes to go from the source port to the destination port.

In addition, [pathinfo](#) can provide, upon request, statistics on every traversed ISL.

The routing and statistics information are provided by every switch along the path, based on the current routing tables information and statistics calculated continuously in real-time. Each switch represents one hop of the total path.

Other options allow the collection of information on the reverse path, or on a user selected path (source route). For each hop, the routing information output includes the following:

Hop	The hop number. The local switch is hop 0.
In Port	The port that the frames come in from on this path. For hop 0, the source port
Domain ID	The domain of the switch
Out Port	The output port that the frames use to reach the next hop on this path. For the last hop, the destination port.
BW	The bandwidth of the output ISL, in Gb/sec. It does not apply to the embedded port.
Cost	The cost of the ISL used by FSPF routing protocol. It only applies to an E_Port.

For each hop, statistics are broken down into basic and extended. They are reported below the routing information, separated into input port statistics and output port statistics. For each port, they are further separated into transmit and receive statistics. Statistics are not reported for the embedded port.

Some statistics values are measured over multiple time intervals. For example, the output line utilization in Bytes/sec is calculated over both a 1 second period and over a 64 seconds period. This gives an idea of both the current line utilization, and the utilization over a longer period of time. The time interval is reported in parenthesis after the value's description.

Maximum hop count, [pathinfo](#) uses a special frame that is sent hop by hop from the source switch to the destination switch, collecting routing and statistics information at every hop. In order to prevent such a frame to loop forever if an error occurs, a maximum number of hops for the frame to traverse is enforced. The hop count includes all hops in the direct path from source to destination, and also all the hops in the reverse path, if the tracing of the reverse path is requested. The default value for the maximum hop count is 25.

Basic statistics report variables that give an indication of ISL congestion along the path. They include the following:

B/s	Bytes per second
Txcrdz	The length of time in milleseconds that the port has been prevented from transmitting frames due to lack of buffer-to-buffer credit. It is an indication of downstream congestion. Other command, such as <a href="#">portStatsShow</a> , might express this value in units other than milliseconds.

Extended statisticsExtended statistics report variables of general interest. They include the following:

F/s	Frames per second
Words	Total number of 4-byte Fibre Channels words.
Frame	Total number of frames.
Errors	Total number of errors that might cause a frame not to be received correctly. This includes CRC errors, bad EOF errors, frame truncated errors, frame too short errors and encoding errors inside a frame.

In general, reverse path is the path from port A on switch X to port B on switch Y might be different from the path from port B to port A. The difference could be in the links traversed between the same sequence of switches, or the reverse path

might even involve different switches. The trace reverse path option allows the user to determine both routing and statistics information for the reverse path, in addition to those for the direct path.

The source route option allows the user to specify a sequence of switches or ports that the pathinfo frame has to traverse to reach the destination. Therefore, the path might be different from the one the actual traffic from source to destination will take.

The source route is expressed as a sequence of switches, a sequence of output ports, or a combination thereof. The next hop in the source route is described by either the output port to be used to reach the next hop, or the domain ID of the next hop. In case both an output port and the next hop's domain ID are specified for a certain hop, the output port takes precedence.

The source route can specify a partial route from source to destination (in which case the remaining hops are chosen as the path from the input port on the first hop not listed in the source route to the destination), as a full route, or as an arbitrary route across the fabric. The maximum hop count is enforced.

If the source route does not specify all the switches along a section of the path, a further option allows to specify a strict vs. a loose path. A strict source route requires that only the specified switches are reported in the path description. If two switches are specified back to back in the source route descriptor, but are not directly connected, the switches in between will be ignored. In case of a loose source route, the switches in between will be reported. The concepts of strict and loose route apply to the portion(s) of the path described by domains, not to the part described by output ports.

## Operands

The following operands are optional:

domain	ID of the destination domain
source_port	Port of whose path to the destination domain is sought. It can be an F_Port, E_Port, or embedded port (default).
destination_port	Port on the destination switch. <a href="#">pathinfo</a> returns the state of the port.
-r	Display reverse path in addition to forward path in output.

Without operands, [pathinfo](#) displays a menu in which the following parameters can be provided:

max hops	The maximum number of hops that the <a href="#">pathinfo</a> frame is allowed to traverse; default is 25.
----------	---

domain	ID of the destination domain
source_port	Port of whose path to the destination domain is sought. It can be an F_Port, E_Port, or embedded port (default).
destination_port	Port on the destination switch. <a href="#">pathinfo</a> returns the state of the port, and all requested statistics pertaining to the port; default is embedded port.
basic status	Requests the reporting of basic statistics on every link; default is no.
extended stats	Requests the reporting of extended statistics on every link; default is no.
trace reverse path	Provides path information from the destination port to the source port; default is no.
source route	Specifies a sequence of switches or ports that the <a href="#">pathinfo</a> frame should traverse; default is no.
strict source rte	Specifies that the source route must be followed strictly as indicated, skipping possible intermediate switches.
Timeout	The maximum time allowed to wait for the response; default is 5 seconds.

Examples

To display the [pathinfo](#) command with all operands:

```
switch:admin> pathInfo 91
Target port is Embedded
Hop  In Port  Domain ID (Name)      Out Port  BW    Cost
-----
0      E        9 (web226)            2         1G    1000
1      3        10 (web229)           8         1G    1000
2      8         8 (web228)           9         1G    1000
3      6        91 (web225)           E          -      -
```

To display the `pathinfo` command through the menu, including basic and extended statistics:

```
switch:admin> pathInfo
Max hops: (1..127) [25]
Domain: (1..239) [-1] 8
Source port: (0..15) [-1]
Destination port: (0..255) [-1]
Basic stats (yes, y, no, n): [no] y
Extended stats (yes, y, no, n): [no] y
Trace reverse path (yes, y, no, n): [no]
Source route (yes, y, no, n): [no]
Timeout: (1..30) [5]
Target port is Embedded
```

Hop	In Port	Domain ID (Name)	Out Port	BW	Cost
0	E	9 (web226)	2	1G	1000

Port	E		2
Tx	Rx	Tx	Rx
B/s (1s)	-	-	0
B/s (64s)	-	-	1
Txcrdz (1s)	-	-	0
Txcrdz (64s)	-	-	0
F/s (1s)	-	-	0
F/s (64s)	-	-	2743
Words	-	-	2752748
Frames	-	-	219849
Errors	-	-	-

Hop	In Port	Domain ID (Name)	Out Port	BW	Cost
1	3	10 (web229)	12	1G	1000

Port	3		12
Tx	Rx	Tx	Rx
B/s (1s)	36	76	0
B/s (64s)	5	5	5
Txcrdz (1s)	0	-	0
Txcrdz (64s)	0	-	0
F/s (1s)	1	1	0
F/s (64s)	0	0	0
Words	240434036	2294316	2119951
Frames	20025929	54999	162338
Errors	-	4	-

Hop	In Port	Domain ID (Name)	Out Port	BW	Cost
2	14	8 (web228)	E	-	-

Port	14		E
x	Rx	Tx	Rx
x			

---<continued on next page>---

-----				
B/s (1s)	0	0	-	-
B/s (64s)	5	5	-	-
Txcrdz (1s)	0	-	-	-
Txcrdz (64s)	0	-	-	-
F/s (1s)	0	0	-	-
F/s (64s)	0	0	-	-
Words	20158695	1021842	-	-
Frames	1665662	56849	-	-

See Also

[portStatsShow](#)

## pdShow

Displays data from a panic dump file.

### Synopsis

```
pdshow [panic-dump-file]
```

### Availability

admin

### Description

Use this command to display data from a panic dump file. The panic dump file contains information that might be useful to determine the cause of the system panic.

When executed without any arguments, this command displays output from the latest panic dump file available on the switch.

If a panic dump file is specified as an argument, the contents of that specific file are displayed.

### Operands

This command has the following operands:

<code>panic-dump-file</code>	Specify the full path name of a panic dump file. This operand is optional.
------------------------------	--



## Example

To examine a panic dump file by the name `panic_dump` located under the directory `/tmp`:

```
switch:admin> pdshow /tmp/panic_dump

*** CAUTION ***
* Host PLATFORM (current) is: 'Unknown'
* PLATFORM got from pd file is: 'Ulysses'
* Some restuls shown may be incorrect and/or missing
* It is best if this command is run on same PLATFORM as that of pdfile
  *****

*****
* File   :/core_files/panic/core.pd1038932352      *
* SECTION:PD_MISC                                *
-----*****-----
WatchDogRegister=0x0
Section=Startup time: Tue Dec  3 16:06:11 UTC 2002
Kernel=      2.4.19
Fabric OS=   v4.1.0_j_dist_1103
Made on=    Tue Dec 3 19:07:13 2002
Flash=      Tue Dec 3 13:19:06 2002
BootProm=   3.2.0
Section=HA show Output

<output truncated>
```

## See Also

[portLogDump](#)

[saveCore](#)

## perfAddEEMonitor

Adds an end-to-end monitor to a port.

### Synopsis

```
perfAddEEMonitor [slotnumber/]portnumber, "SourceID",  
"DestID"
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to add an end-to-end performance monitor to a port. The performance monitor counts the number of words received, number of words transmitted, and number of CRC errors detected using either of the following two conditions:

- For frames received at the port, the frame SID is the same as "SourceID" and frame DID is the same as "DestID," both RX\_COUNT and CRC\_COUNT will be updated accordingly. Note that the CRC\_COUNT will count the CRC errors detected with the frames received at or transmitted from the associated port.
- For frames transmitted from the port, the frame DID is the same as "SourceID" and frame SID is the same as "DestID," both TX\_COUNT and CRC\_COUNT will be updated accordingly.

Depending on the application, any port along the routing path can be selected for such monitoring.

End-to-End monitors traffic on the receiving port, respective to the "SourceID."

RX\_COUNT are associated with frames received at the port. CRC\_COUNT is associated with frames received at and transmitted from the port. TX\_COUNT is associated with frames transmitted from the port.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these performance monitors.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
SourceID	Specify the 3-byte SID (Source ID) of the originator device. It should be in "0xDDAAPP" format, where DD is Domain ID, AA is Area ID and PP is AL_PA ID. For example, 0x058e0f, has a Domain ID of "5," an Area ID of "8e," and an AL_PA ID of "f."
DestID	Specify the 3-byte DID (Destination ID) of the destination device. It should be in "0xDDAAPP" format, where DD is Domain ID, AA is Area ID and PP is AL_PA ID. For example, 0x058e0f, has a Domain ID of "5," an Area ID of "8e," and an AL_PA ID of "f."

## Example

To add an end-to-end monitor to blade 1 port 2:

```
switch:admin> perfAddEEMonitor 1/2, "0x058e0f", "0x1182ef"
End-to-End monitor number 0 added.
```

## See Also

[perfAddIPMonitor](#)  
[perfAddReadMonitor](#)  
[perfAddRWMonitor](#)  
[perfAddSCSIMonitor](#)  
[perfAddUserMonitor](#)

`perfAddWriteMonitor`

`perfClearEEMonitor`

`perfDeIEEMonitor`

`perfShowEEMonitor`

## perfAddIPMonitor

Adds a filter-based monitor for IP frame count.

### Synopsis

```
perfAddIPMonitor [slotnumber/]portnumber[, "alias"]
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to define filter-based monitors to count the number of IP traffic frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed, if one was specified. All valid monitor numbers and user-defined aliases can be displayed with the [perfShowFilterMonitor](#) command.

There is no need to define multiple IP frame monitors on a port.

### Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
------------	--

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and must be enclosed in quotation marks. This operand is optional. The default alias is IP FRAME.

## Example

To add an IP monitor to a port:

```
switch:admin> perfAddIPMonitor 1/4, "IP_MONITOR"  
IP traffic frame monitor #0 added_
```

## See Also

[perfAddEEMonitor](#)  
[perfAddReadMonitor](#)  
[perfAddRWMonitor](#)  
[perfAddSCSIMonitor](#)  
[perfAddUserMonitor](#)  
[perfAddWriteMonitor](#)

## perfAddReadMonitor

Adds a filter-based monitor for the SCSI `read` command.

### Synopsis

```
perfAddReadMonitor [slotnumber/]portnumber[, "alias"]
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read commands in Fibre Channel frames. Only frames transmitted are counted.

After successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed, if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the [perfShowFilterMonitor](#) command. The maximum number of filters is based on field ASCI resources per port including user-defined filters, read filters, write filters, read/write filters, SCSI frame monitor, and IP frame monitor.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
alias	<p>Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI READ.</p>

## Example

To add a SCSI read monitor to a port:

```
switch:admin> perfAddReadMonitor 2/4, "SCSI_R"  
SCSI Read filter monitor #2 added
```

## See Also

[perfAddEEMonitor](#)  
[perfAddIPMonitor](#)  
[perfAddRWMonitor](#)  
[perfAddSCSIMonitor](#)  
[perfAddUserMonitor](#)  
[perfAddWriteMonitor](#)



## perfAddRWMonitor

Adds a monitor for the SCSI read and write commands.

### Synopsis

```
perfAddRWMonitor [slotnumber/]portnumber[, "alias"]
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to define filter-based monitors to count the number of SCSI FCP Read and Write commands in Fibre Channel frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed, if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the [perfShowFilterMonitor](#) command.

The maximum number of filters is eight per port, including user-defined filters, read filters, write filters, read/write filters, SCSI frame monitor, and IP frame monitor.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
alias	<p>Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI READ.</p>

## Example

To add an SCSI read and write monitor to a port:

```
switch:admin> perfAddRWMonitor 2/4, "SCSI_RW"  
SCSI Read/Write monitor #1 is added
```

## See Also

[perfAddEEMonitor](#)  
[perfAddIPMonitor](#)  
[perfAddReadMonitor](#)  
[perfAddSCSIMonitor](#)  
[perfAddUserMonitor](#)  
[perfAddWriteMonitor](#)

## perfAddSCSIMonitor

Adds a monitor for SCSI frame count.

### Synopsis

```
perfAddSCSIMonitor [slotnumber/]portnumber[, "alias"]
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to define filter-based monitors to count the number of SCSI traffic frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user defined alias is also displayed, if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the [perfClearFilterMonitor](#) command.

There is no need to define multiple SCSI frame counters on a port.

### Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
------------	--

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
alias	Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI READ.

## Example

To add a SCSI traffic frame monitor to a port:

```
switch:admin> perfAddSCSIMonitor 2/4, "SCSI_FR"  
SCSI traffic frame monitor #0 added
```

## See Also

[perfAddEEMonitor](#)  
[perfAddIPMonitor](#)  
[perfAddReadMonitor](#)  
[perfAddRWMonitor](#)  
[perfAddUserMonitor](#)  
[perfAddWriteMonitor](#)

## perfAddUserMonitor

Adds a user-defined filter-based monitor.

### Synopsis

```
perfAddUserMonitor [slotnumber/]portnumber"grouplist"  
["alias"]
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to define a special mechanism to qualify frames for statistics-gathering to fit your own special need. Only frames transmitted are counted.

Each group of elements with the same offset will have their comparison result (OR-ed) together before the combined result of each group gets (AND-ed) together for final comparison result. If the final result is logical 1, then the monitor counter will be increased by 1.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias is also displayed, if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the [perfShowFilterMonitor](#) command.

The maximum number of filters is eight per port including user defined filters, read filters, write filters, read/write filters, SCSI frame monitor, and IP frame monitor. In addition, there should be no more than six different offsets for each filter and no more than four different values per offset defined by the user. Although you can only configure six unique offsets per port, multiple filters can have the same six offsets.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

**grouplist**

Specify up to 6 sets of Offset, Mask, and ValueList separated by a semicolon (;). The entire grouplist operand must be enclosed in quotation marks. This operand is required.

The grouplist operand must be specified in the following format:

"offset, Mask, ValueList; offset, Mask, ValueList"

For example:

"4, 0xff, 0x22; 12, 0xff, 0x01"

The grouplist component values are as follows:

- **Offset** - Specify the offset within the frame. Offset 0 is the first byte of the SOF, and offset 4 is the first byte of the frame header. The Offset must be in decimal format. Valid values for Offset are 0, [4-63]. Offset 0 is a special case which can be used to monitor the first 4 bytes of SOFx frames. EOF can not be monitored.
- **Mask** - Specify the mask value to be applied (ANDed) to frame contents.
- **ValueList** - Specify up to four values that need to be captured from frame contents. The ValueList can be either hexadecimal or decimal format.
- **SOFx frames** are considered a special case. The Offset is specified as 0x0 and valueList is specified with:
  - 0 - SOFf
  - 1 - SOFc1
  - 2 - SOFi1
  - 3 - SOFn1
  - 4 - SOFi2
  - 5 - SOFn2
  - 6 - SOFi3
  - 7 - SOFn3

**alias**

Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional.

## Examples

To add a filter-based monitor for all Extended Link Service requests (R\_CTL=0x22 and TYPE=0x01) to a port:

```
switch:admin> perfAddUserMonitor 2/4, "4, 0xff, 0x22; 12, 0xff, 0x01"  
User monitor #0 added
```

As a special case, to add a filter-based monitor for SOFi3 to a port:

```
switch:admin> perfAddUserMonitor 1/4, "0, 0xff, 6"  
User monitor #1 added
```

## See Also

- [perfAddEEMonitor](#)
- [perfAddIPMonitor](#)
- [perfAddReadMonitor](#)
- [perfAddRWMonitor](#)
- [perfAddSCSIMonitor](#)
- [perfAddWriteMonitor](#)



## perfAddWriteMonitor

Adds a filter-based monitor for the SCSI write command.

### Synopsis

```
perfAddWriteMonitor [slotnumber/]portnumber[, "alias"]
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to define filter-based monitors to count the number of SCSI FCP write commands in Fibre Channel frames. Only frames transmitted are counted.

After a successful execution of this command, a monitor number is displayed. The monitor number is provided for easy manipulation of these filter-based performance monitors. The optional user-defined alias also is displayed, if one was specified. All valid monitor numbers and user-defined aliases can be retrieved with the [perfShowFilterMonitor](#) command. The maximum number of filters is eight per port, including user-defined filters, read filters, write filters, read/write filters, SCSI frame monitor, and IP frame monitor.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
alias	<p>Specify a name for this monitor. This character string can be a maximum of 10 characters long and is truncated if more characters are specified. This operand must be enclosed in quotation marks. This operand is optional. The default alias is SCSI_Write.</p>

## Example

To add an SCSI Write command monitor to a port:

```
switch:admin> perfAddWriteMonitor 1/4, "SCST_W"  
SCSI Write filter monitor 0 added
```

## See Also

[perfAddEEMonitor](#)  
[perfAddIPMonitor](#)  
[perfAddReadMonitor](#)  
[perfAddRWMonitor](#)  
[perfAddSCSIMonitor](#)  
[perfAddUserMonitor](#)

## perfCfgClear

Clears the previously saved performance monitoring configuration settings from nonvolatile memory.

### Synopsis

perfCfgClear

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to clear the previously saved end-to-end and filter configuration settings of performance monitoring from nonvolatile memory.

### Operands

none

### Example

To clear the performance monitoring information from nonvolatile memory:

```
switch:admin> perfcfgClear
This will clear Performance Monitoring settings in FLASH ROM.
The RAM settings won't change. Do you want to continue? [y|n]y
Please wait ...
Performance Monitoring configuration cleared from FLASH.
```

### See Also

[perfCfgRestore](#)

[perfCfgSave](#)

## perfCfgRestore

Restores performance monitoring configuration settings from nonvolatile memory.

### Synopsis

perfCfgRestore

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to restore the performance monitoring configuration information from nonvolatile memory. This does not restore the information cleared using the [perfCfgClear](#) command; rather, it restores the configuration on nonvolatile memory. Any configuration changes that were not saved are lost using the [perfCfgRestore](#) command.

### Operands

none

### Example

To restore the performance monitoring configuration information from nonvolatile memory:

```
switch:admin> perfCfgRestore
This will overwrite current Performance Monitoring settings in RAM. Do you
want to continue? [y|n]y
Please wait ...
Performance monitoring configuration restored from FLASH ROM.
```

**See Also**

[perfCfgClear](#)

[perfCfgSave](#)

## perfCfgSave

Saves performance monitoring configuration settings to nonvolatile memory.

### Synopsis

perfCfgSave

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to save the current end-to-end and filter configuration settings of performance monitoring into nonvolatile memory. This enables the performance monitoring configuration to be saved across power cycles.

### Operands

none

### Example

To save the current performance monitoring configuration to firmware:

```
switch:admin> perfCfgSave
This will overwrite previously saved Performance Monitoring settings in FLASH
ROM. Do you want to continue? [y|n]y
Please wait ...
Performance monitoring configuration saved in FLASH ROM.
```

### See Also

[perfCfgClear](#)

[perfCfgRestore](#)

# perfClearEEMonitor

Clears statistics counters of an end-to-end monitor on a port.

## Synopsis

```
perfcleareemonitor [slotnumber/]portnumber[,  
monitorId]
```

## Availability

admin

**Note:** This command requires a Performance Monitor license.

## Description

Use this command to clear statistics counters for all or a specified end-to-end monitor on a port.

After a successful execution of this command, a message displays, confirming that this monitor's counters have successfully been cleared. Prior to issuing this command, verify all the valid end-to-end monitor numbers on a specific port using the [perfShowEEMonitor](#) command to make sure that the right monitor's counters will be cleared.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
------------	---

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to clear. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If not specified, all monitors's counters on the port will be cleared.

## Example

To clear statistics counters for an end-to-end monitor:

```
switch:admin> perfcleareemonitor 1/2, 5
End-to-End monitor number 5 counters are cleared
switch:admin>
switch:admin> perfcleareemonitor 1/2
This will clear ALL EE monitors' counters on port 2, continue? (yes, y, no,
n): [no] y
```

## See Also

[perfAddEEMonitor](#)

[perfShowEEMonitor](#)



# perfClearFilterMonitor

Clears statistics counters of a filter-based monitor.

## Synopsis

```
perfclearfiltermonitor [slotnumber/]portnumber [,
monitorId]
```

## Availability

admin

**Note:** This command requires a Performance Monitor license.

## Description

Use this command to clear statistics counters for all or a specified filter-based monitor.

After a successful execution of this command, a message displays, confirming that this monitor's counters have successfully been cleared. Prior to issuing this command, verify all the valid monitor numbers user-defined aliases on a specific port using the [perfShowFilterMonitor](#) command to make sure that the right monitor's counters are cleared.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
------------	---

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to clear. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If not specified, all monitors's counters on the port will be cleared.

## Example

To clear statistics counters for a filter-based monitor:

```
switch:admin> perfclearfiltermonitor 1/2, 4
Filter-based monitor number 4 counters are cleared
switch:admin>
switch:admin> perfclearfiltermonitor 1/2
This will clear ALL filter-based monitors' counters on port 2, continue?
(yes, y, no, n): [no] y
```

## See Also

[perfAddUserMonitor](#)

[perfShowFilterMonitor](#)

**perfClrAlpaCrc**

Clears an AL\_PA device’s CRC count by the port and AL\_PA.

**Synopsis**

```
perfClrAlpaCrc [slotnumber/]portnumber[, ALPA]
```

**Availability**

admin

**Note:** This command requires a Performance Monitor license

**Description**

Use this command to clear a specific AL\_PA device's CRC error counter. If the AL\_PA is provided as an operand only the counters for that device are reset; if no AL\_PA is specified, this command clears the CRC counters for all AL\_PA devices on the specified port.

**Operands**

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
ALPA	<p>Specify the AL_PA address if you want to clear the CRC error counter for a particular device. The operand is optional.</p>

**Example**

To clear the CRC count on a particular AL\_PA on a port and then clear the CRC count for all AL\_PAs on a port:

```
switch:admin> perfClrAlpaCrc 2/15, 0x59
CRC error count at ALPA 0x59 on port 15 is cleared.
switch:admin>
switch:admin> perfClrAlpaCrc 2/15
This will clear all ALPA CRC Counts on port 31
Do you want to continue? [y|n]y
Please wait ...
All alpa CRC counts are cleared on port 31.
```

**See Also**

[perfShowAlpaCrc](#)

# perfDelEEMonitor

Deletes an end-to-end monitor from a port.

## Synopsis

```
perfDeleEEMonitor [slotnumber/]portnumber[, monitorId]
```

## Availability

admin

**Note:** This command requires a Performance Monitor license.

## Description

Use this command to delete an end-to-end monitor from a port. After a successful execution of this command, a message displays, confirming that this monitor has successfully been deleted. Prior to issuing this command, verify all the valid end-to-end monitor numbers on a specific port using the [perfShowFilterMonitor](#) command to make sure that the right monitor is deleted.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
------------	--

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. When not specified, all monitors on the port are deleted.

## Example

To delete an end-to-end monitor on a port:

```
switch:admin> perfDeleEMonitor 7/2, 5
End-to-End monitor number 5 deleted
switch:admin>
switch:admin> perfdeleemonitor 2
This will remove ALL EE monitors on port 2, continue? (yes, y, no, n): [no] y
```

## See Also

[perfAddEEMonitor](#)

[perfShowEEMonitor](#)

# perfDelFilterMonitor

Deletes a filter-based monitor from a port.

## Synopsis

```
perfDelFilterMonitor [slotnumber/]portnumber[,  
monitorId]
```

## Availability

admin

**Note:** This command requires a Performance Monitor license.

## Description

Use this command to delete a filter-based monitor from a port.

After a successful execution of this command, a message displays confirming that this monitor has successfully been deleted. Prior to issuing this command, verify all the valid monitor numbers and user-defined aliases on a specific port using the [perfShowFilterMonitor](#) command to make sure that the right monitor is deleted.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
------------	--

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
monitorId	Specify the monitor number you want to delete. Monitor numbers are defined when you create the monitor on a port. This operand is optional. If no operand is specified, all monitors on the port are deleted.

## Example

To delete filter monitor 4 from a port:

```
switch:admin> perfDelFilterMonitor 2/3, 4
The specified filter-based monitor is deleted.
switch:admin> perfdelfiltermonitor 2/3
This will remove ALL monitors on port 19, continue? (yes, y, no, n): [no] y
```

## See Also

[perfAddUserMonitor](#)

[perfShowFilterMonitor](#)



## perfHelp

Displays performance monitoring help information.

### Synopsis

perfHelp

### Availability

all users

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to display the available performance monitoring help commands.

### Operands

none

## Example

To display commands related to performance monitoring:

```
switch:admin> perfHelp

perfCfgSave           Save Performance configuration
perfCfgRestore        Restore Performance configuration
perfCfgClear          Clear Performance settings from flash
perfClrAlpaCrc        Clear ALPA device's CRC count
perfShowAlpaCrc       Get ALPA CRC count by port and ALPA
perfAddEEMonitor      Add end-to-end monitor to a port
perfDelEEMonitor      Delete an end-to-end monitor on port
perfClearEEMonitor    Clear an end-to-end monitor's counters on port
perfShowEEMonitor     Show user-defined end-to-end monitors
perfSetPortEEMask     Set overall mask for E-to-E monitors
perfShowPortEEMask    Show the current end-to-end mask
perfAddUserMonitor    Add filter-based monitor
perfAddReadMonitor    Add filter-based monitor - SCSI Read
perfAddWriteMonitor   Add filter-based monitor - SCSI Write
perfAddRWMonitor      Add monitor - SCSI Read and Write
perfAddSCSIMonitor    Add monitor for SCSI frame count
perfAddIPMonitor      Add monitor for IP traffic frame count
perfDelFilterMonitor  Delete filter-based monitor
perfClearFilterMonitor Clear filter-based monitor's counters on port
perfShowFilterMonitor Show filter-based monitors
```

## perfSetPortEEMask

Set overall mask for end-to-end (EE) monitors.

### Synopsis

```
perfSetPortEEMask [slotnumber/]portnumber, "TxSIDMsk",  
"TxDIDMsk", "RxSIDMsk", "RxDIDMsk"
```

### Availability

admin

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to set the mask for the EE monitors of a port. This command enables a user to selectively choose the kind of Fibre Channel frames in which the number of words are to be counted.

This command enables you to identify one or all of the address fields (Domain ID, Area ID, AL\_PA ID) of the SID or DID to trigger the monitor.

When a mask is set (0xff), the corresponding field will be used to trigger the monitor. If the mask is unset (0x00), the corresponding field will be ignored.

There is only one EE mask per port. The mask is applied to all eight EE monitors available on a port. The default EE mask value upon power-on is already set. When you change the mask, the counters are also reset to 0. Resetting the port mask deletes all EE counters.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
TxSIDMsk	<p>Specify the source ID mask in “dd:aa:pp” format, where “dd” is Domain ID mask, “aa” is Area ID mask and “pp” is AL_PA ID mask. For example, “00:ff:00” uses TxSID Area ID to trigger EE monitor comparison. TxSIDMsk stands for “transmitting source ID mask.”</p> <p>Specify the following values to turn on or off a specific field:</p> <ul style="list-style-type: none"><li>0 - Specifies that the field does not trigger EE monitors.</li><li>ff - This specifies that the field triggers EE monitors.</li></ul> <p>This operand must be enclosed in quotation marks. This operand is required.</p>
TxDIDMsk	<p>Specify the destination ID mask in “dd:aa:pp” format. This operand must be enclosed in quotation marks. TxDIDMsk stands for “destination source ID mask.” This operand is required.</p>
RxSIDMsk	<p>Specify the source ID mask in “dd:aa:pp” format. This operand must be enclosed in quotation marks. This operand must be enclosed in quotation marks. RxSIDMsk stands for “receiving source ID mask.” This operand is required.</p>
RxDIDMsk	<p>Specify the destination ID mask in “dd:aa:pp” format. This operand must be enclosed in quotation marks. This operand is required.</p>

## Example

To set the overall mask for end-to-end monitors on a port:

```
switch:admin> perfsetporteemask 2/4, "00:00:00", "ff:ff:ff", "00:00:ff",  
"ff:00:00"  
The EE mask on port 6 is set and EE counters are reset.
```

## See Also

[perfAddEEMonitor](#)

## perfShowAlpaCrc

Displays the AL\_PA CRC count by port or by AL\_PA.

### Synopsis

```
perfShowAlpaCrc [slotnumber/]portnumber[, ALPA]
```

### Availability

all users

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to display a specific AL\_PA device CRC error count by the port or AL\_PA. If the AL\_PA operand is specified, only the CRC count for that AL\_PA device is displayed. If the AL\_PA operand is not specified, the CRC count for all the AL\_PA devices on a specified port are displayed.

CRC count is a 64-bit counter. When the count is over 32 bits, the CRC count value is displayed in hexadecimal; otherwise, CRC count is displayed in decimal format.

### Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
------------	---

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
ALPA	Specify the AL_PA address if you want to get the CRC errors for a particular device. This operand is optional.

**Example**

To display the CRC error count for all AL\_PA devices on a port:

```
switch:admin> perfShowAlpaCrc 2/4
ALPA    CRC count
-----
0x01    0
```

**See Also**

[perfClrAlpaCrc](#)

## perfShowEEMonitor

Displays end-to-end monitor information and frame traffic on a port.

### Synopsis

```
perfShowEEMonitor [slotnumber/]portnumber[, interval]
```

### Availability

all users

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to display end-to-end monitor information and frame traffic on a port. This command can display (if no `interval` operand is specified):

- Key - the monitor number
- SID - Sending ID
- DID - Destination ID
- Owner\_app - TELNET or WEB\_TOOLS
- Owner\_ip\_addr - the IP address of the owner of the EEr monitor
- Tx\_count - Number of FC words transmitted
- Rx\_count - Number of FC words received
- Crc\_count - Number of frames with CRC errors

If you do not specify a value for the interval operand, this command displays end-to-end monitor information and a cumulative count of the traffic detected by the monitor. If you specify a value for the interval operand, this command displays a snapshot of the traffic at the specified interval.



Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
interval	Specify an interval in seconds. This operand is optional.

Examples

To display end-to-end monitor frame traffic on a port at an interval of every 6 seconds:

```
switch:admin> perfShowEEMonitor 4/5, 6
perfShowEEMonitor 53 6: Tx/Rx are # of bytes and crc is # of crc errors
      0          1          2          3          4
-----
crc   Tx   Rx   crc   Tx   Rx   crc   Tx   Rx   crc   Tx   Rx   crc   Tx   Rx
=====
0      0      0    0      0      0    0      0      0    0      0      0    0      0      0
0    53m 4.9m  0    53m 4.9m  0    53m 4.9m  0    53m 4.9m  0    53m  0
0    53m 4.4m  0    53m 4.4m  0    53m 4.4m  0    53m 4.4m  0    53m  0
0    53m 4.8m  0    53m 4.8m  0    53m 4.8m  0    53m 4.8m  0    53m  0
0    53m 4.6m  0    53m 4.6m  0    53m 4.6m  0    53m 4.6m  0    53m  0
0    53m 5.0m  0    53m 5.0m  0    53m 5.0m  0    53m 5.0m  0    53m  0
0    53m 4.8m  0    53m 4.8m  0    53m 4.8m  0    53m 4.8m  0    53m  0
0    53m 4.5m  0    53m 4.5m  0    53m 4.5m  0    53m 4.5m  0    53m  0
0    52m 4.5m  0    52m 4.5m  0    52m 4.5m  0    52m 4.5m  0    52m  0
0    52m 5.0m  0    52m 5.0m  0    52m 5.0m  0    52m 5.0m  0    52m  0
0    52m 4.5m  0    52m 4.5m  0    52m 4.5m  0    52m 4.5m  0    52m  0
0    52m 4.6m  0    52m 4.6m  0    52m 4.6m  0    52m 4.6m  0    52m  0
```

To display EE monitors on a port:

```
switch:admin> perfshoweemonitor 4/5
There are 7 end-to-end monitor(s) defined on port 53.
```

KEY	SID	DID	OWNER_APP	OWNER_IP_ADDR	TX_COUNT
	RX_COUNT		CRC_COUNT		
0	0x21300	0x21dda	TELNET	N/A	0x00000004d0ba9915
	0x0000000067229e65		0x0000000000000000		
1	0x21300	0x21ddc	TELNET	N/A	0x00000004d0baa754
	0x0000000067229e65		0x0000000000000000		
2	0x21300	0x21de0	TELNET	N/A	0x00000004d0bab3a5
	0x0000000067229e87		0x0000000000000000		
3	0x21300	0x21de1	TELNET	N/A	0x00000004d0bac1e4
	0x0000000067229e87		0x0000000000000000		
4	0x21300	0x21de2	TELNET	N/A	0x00000004d0bad086
	0x0000000067229e87		0x0000000000000000		
5	0x11000	0x21fd6	WEB_TOOLS	192.168.169.40	0x00000004d0bade54
	0x0000000067229e87		0x0000000000000000		
6	0x11000	0x21fe0	WEB_TOOLS	192.168.169.40	0x00000004d0baed41
	0x0000000067229e98		0x0000000000000000		

**Note:** If you do not specify an interval, the EE-based monitor traffic count is displayed in 64-bit format and is cumulative.

See Also

[perfAddEEMonitor](#)

## perfShowFilterMonitor

Displays filter-based monitor information and frame traffic for a port.

### Synopsis

```
perfShowFilterMonitor [slotnumber/]portnumber[,  
interval]
```

### Availability

all users

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to display all the filter-based monitors defined on the specified port and the traffic count values. This command can display (if no `interval` operand is specified):

- Key - the monitor number
- Alias - the monitor alias name
- Owner\_app - Telnet or Web\_Tools
- Owner\_ip\_addr - the IP address of the owner of the filter monitor
- Frame\_count - cumulative 64 bit frame count

If you do not specify a value for the interval operand, this command displays a cumulative count of the traffic detected by the monitor. If you specify a value for the interval operand, this command displays a snapshot of the traffic at the specified interval.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
interval	Specify an interval in seconds. This operand is optional.

## Examples

To display filter monitor traffic on a port at an interval of every 6 seconds:

```
switch:admin> perfshowfiltermonitor 2/5, 6
perfShowFilterMonitor 21, 6
```

0	1	2	3	4	5	6
#Frames	#CMDs	#CMDs	#Frames	#Frames	#CMDs	#CMDs
0	0	0	0	0	0	0
26k	187	681	682	682	494	187
26k	177	711	710	710	534	176
26k	184	734	734	734	550	184
26k	182	649	649	649	467	182
26k	188	754	755	755	567	184
26k	183	716	716	717	534	183
26k	167	657	656	655	488	167
26k	179	749	749	749	570	179
26k	164	752	752	752	588	164
26k	190	700	700	700	510	190
26k	181	701	701	701	520	181
26k	200	750	750	751	550	201
26k	180	692	692	691	512	179
26k	179	696	696	696	517	179
26k	187	720	720	720	533	187
26k	200	722	722	722	522	200
26k	204	717	717	717	513	204

To display filter monitor information on a port:

```
switch:admin> perfshowfiltermonitor 2/5
There are 7 filter-based monitors defined on port 21.
```

KEY	ALIAS	OWNER_APP	OWNER_IP_ADDR	FRAME_COUNT
0	SCSI_Frame	TELNET	N/A	0x000000000002c2229
1	SCSI_WR	TELNET	N/A	0x000000000000464a
2	SCSI_RW	TELNET	N/A	0x000000000000fd8c
3	SCSI_RW	WEB_TOOLS	192.168.169.40	0x0000000000007ba3
4	SCSI_RW	WEB_TOOLS	192.168.169.190	0x0000000000004f0e
5	SCSI_RD	WEB_TOOLS	192.168.169.40	0x0000000000002208
6	SCSI_WR	WEB_TOOLS	192.168.169.40	0x000000000000033a

**Note:** If you do not specify an interval, the filter-based monitor frame count is displayed in 64-bit format and is cumulative.

See Also

[perfAddUserMonitor](#)

## perfShowPortEEMask

Displays the current end-to-end mask of a port.

### Synopsis

```
perfShowPortEEMask [slotnumber/]portnumber
```

### Availability

all users

---

**Note:** This command requires a Performance Monitor license.

---

### Description

Use this command to display the current end-to-end mask of a port. There are only two commands that can modify the value of the EE mask: [perfSetPortEEMask](#) and [perfCfgRestore](#).

The end-to-end mask has 12 fields:

TxSID Domain:	on
TxSID Area:	on
TxSID ALPA:	on
TxDID Domain:	on
TxDID Area:	on
TxDID ALPA:	on
RxSID Domain:	on
RxSID Area:	on
RxSID ALPA:	on
RxDID Domain:	on
RxDID Area:	on
RxDID ALPA:	on

The fields that are marked “on” are used to trigger end-to-end monitors. The default value of the EE mask is all fields set to “on.”

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

## Example

To display the end-to-end mask on a port:

```
switch:admin> perfShowPortEEMask 2/4
The EE mask onport 20 is set by application NONE

TxSID Domain:  on
TxSID Area:    on
TxSID ALPA:    on
TxDID Domain:  on
TxDID Area:    on
TxDID ALPA:    on
RxSID Domain:  on
RxSID Area:    on
RxSID ALPA:    on
RxDID Domain:  on
RxDID Area:    on
RxDID ALPA:    on
```

## See Also

[perfAddEEMonitor](#)  
[perfDelEEMonitor](#)  
[perfSetPortEEMask](#)

[perfShowEEMonitor](#)

[perfShowPortEEMask](#)



## pkiCreate

Creates public key infrastructure (PKI) objects.

### Synopsis

```
pkicreate
```

### Availability

admin

### Description

Use this command in nonsecure mode to create PKI objects:

- Switch private key and CSR
- Private key pass-phrase
- Install root certificate

This command does not create the switch certificate. The switch certificate should be obtained offline from Certificate Authority.

In secure mode, this command exits with a warning and does not create PKI objects.

### Operands

none

### Examples

To create PKI objects in nonsecure mode:

```
switch:admin> pkicreate
Installing Private Key and Csr...
Switch key pair and CSR generated...
Installing Root Certificate...
```

If run in secure mode, the following error message is displayed:

```
Warning !! Switch is in secure mode.
Can not create new Pki Objects. Exiting...
```

## pkiRemove

Remove existing public key infrastructure (PKI) objects.

### Synopsis

pkiremove

### Availability

admin

### Description

Use this command to remove PKI objects in nonsecure mode. It removes switch private key, private key pass-phrase, CSR, root certificate, and switch certificate.

In secure mode, this command displays a message and does not remove PKI objects.

### Operands

none

### Examples

To remove PKI objects in nonsecure mode:

```
switch:admin> pkiremove
```

```
WARNING!!!
```

```
Removing Pki objects will impair the security functionality of this fibre  
channel switch. If you want secure mode enabled, you will need to get the  
switch certificate again.
```

```
About to remove Pki objects.
```

```
ARE YOU SURE (yes, y, no, n): [no] y
```

```
All PKI objects removed.
```

If run in secure mode, the following error message is displayed:

```
switch:admin> pkiremove
```

```
This Switch is in secure mode.
```

```
Removing Pki objects is not allowed. Exiting...
```

## pkiShow

Displays existing public key infrastructure (PKI) objects.

### Synopsis

pkishow

### Availability

all users

### Description

Use this command to display existence of PKI objects, such as switch private key, private key pass-phrase, CSR, root certificate, and switch certificate.

### Operands

none

### Example

To view PKI objects:

```
switch:admin> pkishow
Passphrase      : Exist
Private Key     : Exist
CSR             : Exist
Certificate     : Empty
Root Certificate: Exist
```

## portAlphaShow

Displays the AL\_PAs of a port.

### Synopsis

```
portAlphaShow [slotnumber/]portnumber
```

### Availability

all users

### Description

Use this command to display the AL\_PAs present in a port. If the port is not an active L\_Port or if it does not have any AL\_PA, this command prints an error.

### Operands

This command has the following operands:

*slotnumber*

Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).

The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.

*portnumber*

Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

## Example

To display the AL\_PAs of a port:

```
switch:user> portalpashow 4/14
AL_PA  type      AL_PA  type      AL_PA  type
0xe2   public    0xe4   public
```

## See Also

[portCamShow](#)

**portCamShow**

Displays port-based filter CAM utilization.

**Synopsis**

```
portcamshow [slotnumber/] [portnumber]
```

**Availability**

admin

**Description**

Use this command to display the current filter CAM utilization of all ports or one port specified at input.

The following information is displayed:

SID used	Displays the total number of CAM entries used by this port. Please note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
DID used	Displays the total number of CAM entries used by this port. Note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
SID entries	Displays all existing Source ID entries within the CAM per quad. Please note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
DID entries	Displays all existing Destination ID entries within the CAM per quad. Note that each CAM entry (either SID or DID CAM) can be shared among ports in the same quad.
SID Free	Displays the total number of free SID CAM entries per quad.
DID Free	Displays the total number of free DID CAM entries per quad.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

## Examples

To display the filter CAM utilization for all ports on a switch:

```
switch:admin> portcamshow
Port 0 to Port 9:
-----
Port      SID used  DID used
0         0      0
1         0      0
2         0      0
3         0      0
4         0      0
5         0      0
6         0      0
7         0      0
8         0      0
9         0      0
10        0      0
11        0      0
12        0      0
13        0      0
14        0      0
15        0      0
-----
Quad ports (SID Free, DID Free)
00-03 (64, 512)  04-07 (64, 512) 08-11 (64, 512) 12-15 (64, 512)
<output truncated>
```



To display the filter CAM utilization for a single port on a switch:

```
switch:admin> portcamshow 3/2
-----
Area   SID used   DID used   SID entries   DID entries
 44      3         1        350400        2b2200
          220800        2b1200
          220c00        2b0400
          2b23e4
-----
Quad ports (SID Free, DID Free)
32-35 (511, 61)
```

**See Also**

[switchShow](#)

## portCfgDefault

Restores the port configuration to default values.

### Synopsis

```
portcfgdefault [slotnumber/]portnumber
```

### Availability

admin

### Description

Use this command to reset any special configuration values on a port to their factory defaults. You can view the current port configuration using the [portCfgShow](#) command.

### Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

### Example

To reset a port to factory defaults:

```
switch:admin> portcfgdefault 1/3
```

**See Also**

[portCfgEport](#)  
[portCfgGport](#)  
[portCfgLongDistance](#)  
[portCfgLport](#)  
[portCfgPersistentDisable](#)  
[portCfgPersistentEnable](#)  
[portCfgShow](#)  
[portCfgSpeed](#)  
[portCfgTrunkport](#)

## portCfgEport

Enables or disables a port from becoming an E\_Port.

### Synopsis

```
portCfgEport [slotnumber/]portnumber, mode
```

### Availability

admin

### Description

Use this command to enable or disable a port from becoming an E\_Port. The E\_Port capability is enabled by default unless this command is used to disable it.

When a port is configured as a non-E\_Port through this command, an ISL connected to this port will be segmented. No data traffic between two switches will be routed through this port. Fabric management data, such as zoning information, will not be exchanged through this port either.

Regardless of how many E\_Ports are connected between two switches, the maximum routing paths are currently limited to eight E\_Ports.

The configuration is saved in the nonvolatile memory and is persistent across switch reboot or power cycle.

### Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
------------	---

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify 1 to enable the port to become an E_Port. This is the default port state. Specify 0 to disable the port from becoming an E_Port. When the port_number operand is present, this operand must also be present.

When no operands are specified, the command displays the command syntax.

## Example

To disable a port from becoming an E\_Port:

```
switch:admin> portCfgEport 2/3, 0
```

## See Also

[portShow](#)

[switchShow](#)

## portCfgGport

Designates a port as a locked G\_Port.

### Synopsis

```
portCfgGport [slotnumber/]portnumber, mode
```

### Availability

admin

### Description

Use this command to designate a port as a locked G\_Port. After this is done, the switch attempts to initialize that port as an F\_Port only, and does not attempt loop initialization (FL\_Port) on the port. However, if the device attached to the port initiates loop communication, the switch responds accordingly and the port can then become an FL\_Port. Similarly, a port designated as a G\_Port can become an E\_Port.

Locking a port as a G\_Port only changes the actions initiated by the switch; it does not change how the switch responds to initialization requests.

The configuration is saved in the nonvolatile memory and is persistent across switch reboot or power cycle.

### Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 has a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
------------	--

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify a value of 1 to designate the port as a G_Port or specify a value of 0 to remove the G_Port designation from the port. A value of 0 is the default port state. This operand is required.

## Example

To configure a port as a locked G\_Port:

```
switch:admin> portCfgGport 2/3, 1
```

## See Also

[configure](#)  
[portCfgShow](#)  
[portShow](#)  
[switchShow](#)

## portCfgislMode

Enables or disables ISL R\_RDY mode on a port.

### Synopsis

```
portcfgislmode [slotnumber/]portnumber, [1 | 0]
```

### Availability

admin

### Description

Use this command to enable or disable ISL R\_RDY mode on a port. If enabling ISL R\_RDY mode on a port, make sure the PID format is consistent across the entire fabric. See the [configure](#) command for more information on the core PID format.

ISL R\_RDY mode sends ELP with Flow Control Mode 02 and enables connectivity with WAN gateway products. If a port is ISL R\_RDY mode-enabled, it can only receive ELP with Flow Control Mode 02; ELP with Flow Control Mode 01 will segment the fabric.

This mode cannot detect the PID format of connected ports. If the PID formats for two ISL R\_RDY mode ports are not the same, zoning will drop frames.

This feature is persistent across reboots and does not require a license key.

Use the [portCfgShow](#) command to view whether ISL R\_RDY mode is enabled on a port.



## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
[1   0]	Specify 1 to enable ISL R_RDY mode. Specify 0 to disable ISL R_RDY mode. This operand is required.

## Examples

To enable ISL R\_RDY mode on a port:

```
switch:admin> portcfgislmode 2/3, 1
ISL R_RDY Mode is enabled for port 3. Please make sure the PID
formats are consistent across the entire fabric.
```

To disable ISL R\_RDY mode on a port:

```
switch:admin> portcfgislmode 2/3, 0
```

## See Also

[portCfgShow](#)

## portCfgLongDistance

Configures a port to support long-distance links.

### Synopsis

```
portcfglongdistance [slotnumber/]portnumber  
[distance_level][vc_translation_link_init]
```

### Availability

admin

---

**Note:** This command requires an Extended Fabric license.

---

### Description

Use this command to allocate enough full-size frame buffers on a particular port to support a long-distance link up to 100 km. The port can only be used as an E\_Port. The configuration is saved in the nonvolatile memory and is persistent across switch reboot or power cycle.

The value of *distance\_level* can be one of the following (the numerical value representing each *distance\_level* is shown in parentheses):

- **L0** (0): Reconfigure the port to be a regular switch port. The number of buffers reserved for the port supports links up to 10 km.
- **L0.5**: Level 0.5 ([portCfgShow](#) displays the two-letter code as LM) long distance, up to 25 km. A total of 15 or 30 full-size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec, respectively.
- **L1** (1): Level 1 long distance, up to 50 km. A total of 24 or 50 full-size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec, respectively.
- **L2** (2): Level 2 long distance, up to 100 km. A total of 58 or 63 full-size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec, respectively.

- **LE (3):** Level E mode is for E\_Ports for distances beyond 5 km and up to 10 km, especially for 2 G link speeds. A total of 7 or 13 full-size frame buffers will be reserved for the port at speeds of 1 Gbit/sec and 2 Gbit/sec, respectively. LE does not require an Extended Fabric license.
- **LD:** Dynamic long-distance configuration. The buffer credits for the given E\_Port are automatically configured, based on the actual link distance. Up to a total of 63 full-size frame buffers will be reserved, depending upon the distance measured during E\_Port initialization.

The option "VC Translation Link Init" is used to enable the long-distance link initialization sequence. By default this option is set to 0 (disabled).

Pressing **Ctrl-D** cancels the configuration update.

When a port is configured to be a long-distance port, the output of [portShow](#) and [switchShow](#) displays the long-distance level. In the [portShow](#) output, the long-distance level is indicated as follows:

- L0 normal
- LE standard <= 10 km
- LM medium long <= 25 km
- L1 long <= 50 km
- L2 super long <= 100 km
- LD auto

In the [switchShow](#) output, the long distance mode displays as "Lx", where *x* is the second letter in two-letter distance-level code described earlier; however, L0.5 mode displays L0.5.

---

**Note:** See the *hp StorageWorks Fabric OS 4.2.x Features Guide* for more information. Trunking is not supported with LE, L0.5, and L1 [portCfgLongDistance](#) modes. Trunking is supported for normal E\_Ports (referred to as L0 in [portCfgLongDistance](#) command) with LWL media up to 5 km at the full speed permitted by the link. With LWL media, the throughput begins to fall off beyond 5 km, due to normal latency effects.

---

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
distance	<p>This operand indicates the distance to the connected port. This operand is required. The valid values for this operand are:</p> <ul style="list-style-type: none"><li>■ L0: Deconfigure the port to be a regular switch port. This option supports up to 10-km links for 1 Gbps, or 5-km links for 2 Gbps.</li><li>■ LE: Level E mode is for E_Ports for distances beyond 5 km and up to 10 km especially for 2 Gbps link speeds. LE does not require extended fabric license.</li><li>■ L1: Level one long distance, up to 50 km.</li><li>■ L2: Level two long distance, up to 100 km.</li><li>■ LD: Automatic long distance configuration.</li></ul>
VC_Translation_ Link_Init	<p>Specify 1 to activate long distance link initialization sequence. Specify 0 to deactivate this mode. The default value is 0 (disabled). This operand is optional.</p>

## Limitations

A quad is defined as a group of four adjacent ports that share a common pool of frame buffers. For example, ports 0–3 belong to a quad, ports 4–7, and so on.

Since the total number of frame buffers is can be shared on a quad base, when one of the ports in the quad is configured as a long-distance port, the remaining ports could be disabled due to lack of frame buffers. If a port is configured as a long-distance port and there are not enough frame buffers left in that quad, the port will not be initialized.

See the *hp StorageWorks Fabric OS 4.2.x Features User Guide* for more information on limitations in port configurations.

## Example

To configure a port to support a 100 km link and be initialized using long-distance link initialization protocol:

```
switch:admin> portcfglongdistance 4/15 L2 1
done.
switch:admin> portshow 4/15
portCFlags: 0x1
portFlags: 0x20001          PRESENT LED
portType: 1.1
portState: 2      Offline
portPhys: 4      No_Light
portScn: 0
portId: 013f00
portWwn: 20:3f:00:60:69:00:02:48
Distance: super long <= 100km
portSpeed: 2Gbps

Interrupts:          9      Link_failure: 0      Frjt:          0
Unknown:             0      Loss_of_sync: 0      Fbsy:          0
Lli:                 9      Loss_of_sig: 9
Proc_rqrd:           0      Protocol_err: 0
Timed_out:           0      Invalid_word: 0
Rx_flushed:          0      Invalid_crc: 0
Tx_unavail:          0      Delim_err: 0
Free_buffer:         0      Address_err: 0
Overrun:             0      Lr_in:        0
Suspended:           0      Lr_out:       0
Parity_err:          0      Ols_in:       0
2_parity_err:        0      Ols_out:      0
CMI_bus_err:         0
```

## See Also

[configure](#)  
[portCfgShow](#)  
[portShow](#)  
[switchShow](#)

## portCfgLport

Locks a port as an L\_Port.

### Synopsis

```
portCfgLport [slotnumber/]portnumber,  
mode[,mode1][,mode2]
```

### Availability

admin

### Description

Use this command to designate a port as an L\_Port. The switch then only attempts to initialize that port as an FL\_Port. The switch never attempts point-to-point (F\_Port) initialization on the port. However, if the device attached to the port initiates point-to-point communication, the switch responds accordingly, and the port might then become an F\_Port.

Similarly, being locked as an L\_Port does not prevent the port from becoming an E\_Port. Locking a port as an L\_Port only affects what actions the switch initiates; it does not change how the switch responds to initialization requests.

### Operands

This command requires the following operands:

portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
mode	Specify 1 to configure the specified port as a locked L_PORT. Specify 0 to deconfigure the specified port from its previous role as a locked L_Port. This operand is required.

The following operands are optional:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
mode1	Specify 1 to configure the L_Port as a private L_Port (then FLOGI will be rejected). Specify 0 to configure the L_Port as a normal public L_Port. The default value is 0.
mode2	Specify 1 to configure the L_Port as a half-duplex L_Port. Specify 0 to configure the L_Port as a full-duplex L_Port. The default value is 0.

## Example

To configure a port as a locked L\_Port:

```
switch:admin> portCfgLport 2/3, 1
```

## See Also

[configure](#)  
[portShow](#)  
[switchShow](#)

## portCfgPersistentDisable

Disables a port persistently.

### Synopsis

```
portcfgpersistentdisable [slotnumber/]portnumber
```

### Availability

admin

### Description

Use this command to persistently disable a port. Persistently disabled ports remain disabled across power cycles, switch reboots, and switch enables. By default, a port is enabled persistently. The change in configuration is effective immediately.

The persistent disable configuration overrides all other port configurations but it does not change the configuration of any other port settings. Use the [portCfgPersistentEnable](#) command to enable a port persistently. A persistent-enabled port reenables all previously set port configurations of that port.

The switch still runs power-on diagnostics and initializes a persistently disabled port. A persistently disabled port can temporarily be enabled by [portEnable](#) command. The [switchEnable](#) command does not enable the persistently disabled ports of that switch.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

Like all other configurable port attributes, port persistent disable will not be affected by [portCfgDefault](#) command; however, it will be cleared by [portCfgDefault](#) command, because a port, by default, is enabled persistently.



Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary, depending on the switch type. This operand is required.

Example

To configure a port as persistently disabled:

```
switch:admin> portcfgpersistentdisable 9/3
switch:admin> portcfgpersistentdisable
Slot 9      0      1      2      3      4      5      6      7      8      9      10     11     12     13     14     15
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
Disabled    -      -      -      YES    -      -      -      -      -      -      -      -      -      -      -      -
```

See Also

- [configDefault](#)
- [configShow](#)
- [configure](#)
- [portCfgDefault](#)
- [portCfgPersistentEnable](#)
- [portCfgShow](#)
- [portShow](#)
- [switchShow](#)

## portCfgPersistentEnable

Enables a port persistently.

### Synopsis

```
portcfgpersistentenable [slotnumber/]portnumber
```

### Availability

admin

### Description

Use this command to persistently enable a port. Persistently enabled ports remain enabled across power cycles, switch reboots, and switch enables. By default, a port is enabled persistently. The change in configuration is effective immediately.

A persistent port enable reenables all previously set port configurations of that port. A persistently enabled port can temporarily be disabled by the [portDisable](#) or [switchDisable](#) command. The [switchDisable](#) command will also disable the persistently enabled ports of that switch.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

The configuration commands [configDefault](#) and [portCfgDefault](#) do not modify the persistent enable attribute of a port.

### Operands

This command has the following operands:

<code>slotnumber</code>	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
-------------------------	---

portnumber                      Specify a port number. Valid values for port number vary, depending on the switch type. This operand is required.

When no operand is specified, the command reports the current port persistent enabled status for all ports in the switch. The value of YES is displayed for ports that are persistently enabled.

Example

To configure a port as persistently enabled:

```
switch:admin> portcfgpersistentenable 9/3
switch:admin> portcfgpersistentenable
Slot 9      0    1    2    3    4    5    6    7    8    9   10   11   12   13   14   15
-----+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---
Enabled    YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES YES
```

See Also

- [configDefault](#)
- [configShow](#)
- [configure](#)
- [portCfgDefault](#)
- [portCfgPersistentDisable](#)
- [portCfgShow](#)
- [portShow](#)
- [switchShow](#)

## portCfgShow

Displays port configuration settings.

### Synopsis

```
portCfgShow [slotnumber/] [portnumber]
```

### Availability

all users

### Description

Use this command to display the current configuration of all ports. If no operand is specified, all the port configuration settings are displayed.

The following configuration information is displayed:

- **Speed** mode is displayed as 1G, 2G, or AN (when in auto speed negotiation mode). This value is set by the [portCfgSpeed](#) command.
- **Trunk Port** mode is displayed as ON when port is set for trunking or blank (..) when trunking is disabled on the port. This value is set by the [portCfgTrunkport](#) command.
- **Long Distance** mode displays as blank (..) when the mode is off, L1 when the link is up to 50 km, or L2 when the link is up to 100 km, and also supports LE, L0.5, and LD modes. This value is set by the [portCfgLongDistance](#) command.
- **VC Link Init** mode (virtual channel) is displayed as blank (..) when the long-distance link initialization option is turned off and (ON) when it is turned on for long distance mode. This value is set by the [portCfgLongDistance](#) command.
- **Locked L\_Port** mode is displayed as ON when port is locked to L\_Port only or blank (..) when L\_Port lock mode is disabled (and it behaves as a U\_Port). This value is set by the [portCfgLport](#) command.
- **Locked G\_Port** mode is displayed as ON when port is locked to G\_Port only or blank (..) when G\_Port lock mode is disabled (and it behaves as a U\_Port). This value is set by the [portCfgGport](#) command.
- **Disabled E\_Port** mode is displayed as ON when port is not allowed to be an E\_Port or blank (..) when the port is allowed to function as an E\_Port. This value is set by the [portCfgEport](#) command.

- Mcast LoopBack mode is displayed as blank (..) when Mcast LoopBack mode is off, and (ON) when Mcast LoopBack mode is enabled. This value is set by the `portcfgmcastloopback` command.
- **ISL R\_RDY Mode** mode is displayed as ON when the port has been R\_RDY-mode enabled or blank (..) when the port is allowed to function as an E\_Port. This value is set by the `portCfgislMode` command.
- **Persistent Disable** mode is displayed as ON when the port is disabled across reboots or power cycles or (..) when the port is allowed to function normally. This value is set by the `portCfgPersistentDisable` command.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.

## Example

To display the configuration settings of ports in a hp StorageWorks SAN Switch 2/32:

```
switch:admin> portcfgshow
Ports of Slot 0    0  1  2  3    4  5  6  7    8  9 10 11    12 13 14 15
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Speed              AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN
Trunk Port         ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON
Long Distance      ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
VC Link Init       ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Locked L_Port      ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Locked G_Port      ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Disabled E_Port    ..  ON  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Mcast LoopBack     ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
ISL R_RDY Mode     ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Persistent Disable..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..

Ports of Slot 0    16 17 18 19    20 21 22 23    24 25 26 27    28 29 30 31
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Speed              AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN  AN
Trunk Port         ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON  ON
Long Distance      ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
VC Link Init       ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Locked L_Port      ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Locked G_Port      ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Disabled E_Port    ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Mcast LoopBack     ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
ISL R_RDY Mode     ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
Persistent Disable..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..  ..
```

where AN:AutoNegotiate, ..:OFF, ??:INVALID.

```
LM:L0.5
switch:admin> portcfgshow 15
Area Number:      15
Speed Level:      AUTO
Trunk Port        ON
Long Distance     OFF
VC Link Init      OFF
Locked L_Port     OFF
Locked G_Port     OFF
Disabled E_Port   OFF
Mcast LoopBack    OFF
ISL R_RDY Mode    OFF
Persistent Disable OFF
Disable due to Buffer ON
```

**See Also**

[portCfgEport](#)  
[portCfgGport](#)  
[portCfgLongDistance](#)  
[portCfgLport](#)  
[portCfgSpeed](#)  
[portCfgTrunkport](#)

## portCfgSpeed

Configures the port speed level.

### Synopsis

```
portCfgSpeed [slotnumber/]portnumber, speed_level
```

### Availability

admin

### Description

Use this command to configure the speed of a port to a particular level. After this command is issued, the port is disabled and enabled so that the port comes up with the new speed setting. The configuration is saved in the nonvolatile memory and is persistent across switch reboot or power cycle.

If the command is specified without an operand, you are prompted to enter the speed value.

The output of the [portShow](#) command displays the current achieved speed of a port and the [portCfgShow](#) command displays the user-desired speed setting for a port.

### Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
------------	---



portnumber	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.
speed_level	<p>Specify the speed of a port. This operand is required. Valid values are one of the following:</p> <ul style="list-style-type: none"><li>0 - Auto-sensing mode. The port automatically configures for the highest speed.</li><li>1 - 1Gbps mode. The port will be at fixed speed of 1 Gbps.</li><li>2 - 2Gbps mode. The port will be at fixed speed of 2 Gbps.</li></ul>

### Example

To configure the speed of a port to 2 Gbit/sec:

```
switch:admin> portCfgSpeed 2/5, 2
```

### See Also

[portShow](#)

[switchCfgSpeed](#)

## portCfgTrunkport

Configures a port to be enabled or disabled for trunking.

### Synopsis

```
portCfgTrunkport [slotnumber/]portnumber, mode
```

### Availability

admin

---

**Note:** This command requires a Trunking license.

---

### Description

Use this command to enable or disable a port for trunking.

### Operands

This command has the following operand:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>
mode	<p>Specify 1 to enable this port for trunking. Specify 0 to disable this port for trunking. This operand is required.</p>

## Example

To enable a port for trunking:

```
switch:admin> portCfgTrunkport 1/3, 1  
done.
```

## See Also

[portCfgShow](#)

[portShow](#)

[switchCfgTrunk](#)

[switchShow](#)

## portdebug

Sets debug level and verbose level of port modules.

### Synopsis

```
portdebug dbg_lvl, vbs_lvl
```

### Availability

admin

### Description

Use this command to set the debug level and verbose level of port modules.

### Operands

This command has the following operands:

<i>dbg_lvl</i>	Specify the debug level to be set for port modules. Valid values are 1–5.
<i>vbs_lvl</i>	Specify the verbose level to be set for port modules. Valid values are 1–5.

### Example

To set debug level and verbose level of port modules:

```
switch:admin> portdebug 3, 4
```

### See Also

[dbgshow](#)

# portDisable

Disables a switch port.

## Synopsis

portDisable [*slotnumber*/]*portnumber*

## Availability

admin

## Description

Use this command to disable a switch port. If the port is connected to another switch, the fabric might reconfigure. If the port is connected to one or more devices, the devices can no longer communicate with the fabric.

If the port was online before being disabled, a state transition will be indicated in the following ways: RSCN, SNMP trap, Web pop-up window.

The front panel LED of a disabled port flashes yellow with a two second cycle.

## Operands

This command has the following operand:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Examples

To disable a port in a Core Switch 2/64 or SAN Director 2/128:

```
switch:admin> portDisable 2/4
```

To disable a port in a SAN Switch 2/32:

```
switch:admin> portDisable 4
```

## See Also

[portCfgPersistentDisable](#)

[portCfgPersistentEnable](#)

[portEnable](#)

[portShow](#)

[switchShow](#)

**portEnable**

Enables a switch port.

**Synopsis**

`portEnable [slotnumber/]portnumber`

**Availability**

admin

**Description**

Use this command to enable a switch port. If the port is connected to another switch, the fabric might reconfigure. If the port is connected to one or more devices, the devices can communicate with the fabric.

For ports that come online after being enabled, the following indications might be sent to indicate a state transition: RSCN, SNMP trap, Web pop-up window.

The front panel LED of an enabled and online port is green.

**Operands**

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Example

To enable a port in a Core Switch 2/64 or SAN Director 2/128:

```
switch:admin> portEnable 2/4
```

To enable a port in a SAN Switch 2/32:

```
switch:admin> portEnable 4
```

## See Also

[portCfgPersistentDisable](#)

[portCfgPersistentEnable](#)

[portDisable](#)

[portShow](#)

[switchShow](#)



**portErrShow**

Displays port error summary.

**Synopsis**

portErrShow

**Availability**

all users

**Description**

Use this command to display an error summary for all ports. The display contains one output line per port and shows error counters in ones, thousands (K), or millions (M).

The following fields are displayed:

frames tx	Frames transmitted
frames rx	Frames received
enc in	Encoding errors inside frames
crc err	Frames with CRC errors
too shrt	Frames shorter than minimum
too long	Frames longer than maximum
bad eof	Frames with bad end-of-frame delimiters
enc out	Encoding error outside of frames
disc c3	Class 3 frames discarded
link fail	Link failures (LF1 or LF2 states)
loss sync	Loss of synchronization
loss sig	Loss of signal
frjt	Frames rejected with F_RJT
fbsy	Frames busied with F_BSY

**Operands**

none

## Example

To display error counters for ports on a switch:

```
switch:admin> porterrshow
frames enc crc too too bad enc disc link loss loss frjt fbsy
tx rx in err shrt long eof out c3 fail sync sig
sig=====
```

0:	22	24	0	0	0	0	0	1.5m	0	7	3	0	0	0
1:	22	24	0	0	0	0	0	1.2m	0	7	3	0	0	0
2:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:	149m	99m	0	0	0	0	0	448	0	7	6	0	0	0
5:	149m	99m	0	0	0	0	0	395	0	7	6	0	0	0
6:	147m	99m	0	0	0	0	0	706	0	7	6	0	0	0
7:	150m	99m	0	0	0	0	0	160	0	7	5	0	0	0
8:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
12:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
13:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
14:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
15:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40:	99m	146m	0	0	0	0	0	666	0	6	796	7	0	0
41:	99m	149m	0	0	0	0	0	15k	0	2	303	4	0	0
42:	99m	152m	0	0	0	0	0	665	0	2	221	5	0	0
43:	99m	147m	0	0	0	0	0	16k	0	2	144	4	0	0
44:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45:	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46:	0	0	0	0	0	0	0	0	0	0	0	2	0	0
47:	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## See Also

[portShow](#)

[portStatsShow](#)

**portFlagsShow**

Displays the port status bitmaps for all ports in a switch.

**Synopsis**

portflagsshow

**Availability**

all users

**description**

Use this command to display the following status for a port:

SNMP	Displays whether the port is online or offline.
Physical	Displays the port physical status. Valid values are In_Sync and No_Light.
Flags	Displays whether there is a SFP inserted in the port, whether the port is active, and the port type.

**Operands**

none

## Example

To display the port status for all ports in the switch:

```
switch:user> portflagsshow
Slot  Port      SNMP      Physical      Flags
-----
1      0      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      1      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      2      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      3      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      4      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      5      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      6      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      7      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1      8      Offline   No_Light      PRESENT LED
1      9      Offline   No_Light      PRESENT LED
1     10      Offline   No_Light      PRESENT LED
1     11      Offline   No_Light      PRESENT LED
1     12      Online    In_Sync       PRESENT ACTIVE E_P
ORT G_PORT LOGIN LED ACCEPT
1     13      Online    In_Sync       PRESENT ACTIVE E_P

--- <output truncated> ---
```

## portLEDTest

Cycles user port LEDs.

### Synopsis

```
portLEDTest [-npass count][-ports itemlist]
```

### Availability

admin

### Description

Use this command to exercise the user port LEDs in the current switch on and off by setting the ATTN LEDs to green for the ON condition and unlighted for the OFF condition. The SPEED LEDs are initially set to black before the command execution. The SPEED LEDs are set to green once the command is executing.

You must disable the current switch (using the [switchDisable](#) command) before running this command. After the command had completed, the ATTN LEDs flash amber, indicating that the command has finished and exited. You can enable the current switch (using the [switchEnable](#) command) to set the ATTN LEDs back to black.

### Options

This command has the following operands:

- |                              |  |
|------------------------------|--|
| <code>-npass count</code>    | Specify the number of times to perform this test. The default value is 10.   |
| <code>-ports itemlist</code> | Specify a list of user ports to run the test. If omitted, all the active ports in the switch are assumed. For more information see the <a href="#">itemList</a> command. |

### Example

To test port LEDs:

```
switch:admin> portledtest -ports 1/1-1/5  
passed.
```

## See Also

[itemList](#)

[switchDisable](#)

[switchEnable](#)

## portLogClear

Clears the port log.

### Synopsis

```
portLogClear
```

### Availability

admin

### Description

Use this command to clear the port log. You might want to clear the port log before triggering an activity so that the log displays only the log events related to that activity.

If the port log is disabled, the following message appears as the first line.

```
WARNING: port log is disabled
```

If the port log is disabled, [portLogClear](#) enables it. Certain errors automatically disable the port log to preserve information needed to understand the error (new events are not collected so that existing information is not overwritten).

### Operands

none

### Example

To clear the port log:

```
switch:admin> portLogClear
switch:admin> portLogShow
port log is empty
```

### Diagnostics

The following errors disable the port log:

```
FCIU, IUBAD
FCIU, IUCOUNT
FCPH, EXCHBAD
```

FCPH, EXCHFEE  
NBFSM, DUPEPORTSCN  
UCAST, RELICPDB

## See Also

[portLogDump](#)

[portLogShow](#)



## portLogConfigShow

Displays the current port log configuration.

### Synopsis

```
portLogConfigShow
```

### Availability

admin

### Description

Use this command to display the current port log configuration.

### Operands

none

### Example

To display the current port log configuration:

```
switch:admin> portLogConfigShow
```

### See Also

[portLogResize](#)

## portLogDump

Displays the port log without page breaks.

### Synopsis

```
portLogDump [count[, saved[, portid]]]
```

### Availability

all users

### Description

Use this command to display the port log, listing all entries in the log without page breaks. This command displays the same information as [portLogShow](#), but [portLogShow](#) prompts the user to press **Enter** between each page.

Port logs are circular log files in the switch firmware, which can save up to 8000 entries per logical switch in v4.1.0. When the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device, and control information.

If the port log is disabled, the following message appears as the first line. See the [portLogClear](#) command for more information.

```
WARNING: port log is disabled
```

The following information displays for each log entry:

Time	Displays the event date and time in milliseconds.
Task	Displays the name of the internal switch procedure that logged the event.
Event	Displays the task event that generated log entry.
Port #	Displays the Port number that logged the event.
Cmd	Defined by the event. See the <i>hp StorageWorks Fabric OS 4.2.x Procedures User Guide</i> for more information.
Args	Displays more information about the event. For ioctl events, these are the I/O control arguments For Tx and Rx, these are the first two header words and word four of the FC-PH frame along with the first word of the <b>payload and internal decoding</b> field.

For a full explanation of the information displayed by this command, see the *hp StorageWorks Fabric OS Procedures 4.2.x User Guide*.

Operands

This command has the following operands:

- count* Specify the maximum number of lines to be displayed. Only the most recent count entries are displayed. This operand is optional.
- saved* Specify a nonzero value to display the saved port log from the last switch fault. See [upTime](#) for conditions that cause a fault. The *count* operand is ignored when displaying the saved log. This operand is optional.
- portid* Specify the port to be displayed. All other ports will not be displayed. This operand is optional.

Example

To display the port log for a port:

```
switch:admin> portlogdump 41
time          task      event  port cmd  args
-----
16:44:21.490  PORT      Rx      41  40  02ffffffd,00ffffffd,0005ffff,14000000
16:44:21.490  PORT      Tx      41   0  c0ffffffd,00ffffffd,00050541
16:44:32.503  PORT      Tx      41  40  02ffffffd,00ffffffd,0542ffff,14000000
16:44:32.506  PORT      Rx      41   0  c0ffffffd,00ffffffd,05420006
16:44:42.340  PORT      Rx      41  40  02ffffffd,00ffffffd,0009ffff,14000000
16:44:42.340  PORT      Tx      41   0  c0ffffffd,00ffffffd,00090545

--- <output truncated> ---
```

See Also

- [portLogClear](#)
- [portLogShow](#)
- [upTime](#)

## portLogDumpPort

Displays the port log of specified port, without page breaks.

### Synopsis

```
portLogDumpPort portid
```

### Availability

all users

### Description

Use this command to display the port log of specified port. The command displays all entries in the log without any page breaks. It is identical to [portLogShowPort](#), except that [portLogShowPort](#) prompts the user to press **Enter** between each page.

Port logs are circular log files in the switch firmware, which can save up to 8,000 entries per logical switch in v4.1.0. Once the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device1, and control information.

If the port log is disabled, the following message appears as the first line. See the [portLogClear](#) command for more information.

```
WARNING: port log is disabled
```

The following information displays for each log entry;

Time	Displays the event date and time in milliseconds.
Task	Displays the name of the internal switch procedure that logged the event.
Event	Displays the task event that generated log entry.
Port #	Displays the Port number that logged the event.
Cmd	Defined by the event. See the <i>hp StorageWorks Fabric OS 4.2.x Procedures User Guide</i> for more information.
Args	Displays more information about the event. For ioctl events, these are the I/O control arguments For Tx and Rx, these are the first two header words and word four of the FC-PH frame along with the first word of the <b>payload and internal decoding</b> field.

For a full explanation of the information displayed by this command, see the *hp StorageWorks Fabric OS 4.2.x Procedures User Guide*.

Operands

This command has the following operand:

portid

Specify the area number of port to be displayed. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

Example

To display the port log dump for a port:

```
switch:admin> portlogdumpport 5
time          task          event   port  cmd   args
-----
16:43:35.963  PORT          Rx       5    40  02ffffffd,00ffffffd,0a3bffff,14000000
16:43:35.963  PORT          Tx       5     0  c0ffffffd,00ffffffd,0a3b0536
16:43:35.967  PORT          Tx       5    40  02ffffffd,00ffffffd,0537ffff,14000000
16:43:35.970  PORT          Rx       5     0  c0ffffffd,00ffffffd,05370a3c
16:43:55.974  PORT          Rx       5    40  02ffffffd,00ffffffd,0a3fffff,14000000
16:43:55.974  PORT          Tx       5     0  c0ffffffd,00ffffffd,0a3f053a
16:43:55.978  PORT          Tx       5    40  02ffffffd,00ffffffd,053bffff,14000000
16:43:55.980  PORT          Rx       5     0  c0ffffffd,00ffffffd,053b0a40
16:43:57.772  PORT          Tx       5    20  02fffc08,00fffc04,053cffff,01000000
16:43:57.776  PORT          Rx       5     0  c0fffc04,00fffc08,053c002a
16:43:57.781  PORT          Rx       5   132  03fffc04,00fffc08,053c002a,01000000
```

See Also

- [portLogClear](#)
- [portLogShow](#)
- [upTime](#)

## **portLogEventshow**

Displays information about port log events.

### **Synopsis**

```
portLogEventShow
```

### **Availability**

admin

### **Description**

Use this command to display information about the ID associated with the various port log events and whether the events are enabled or disabled.

### **Operands**

none

**Example**

Display information about port log events:

```
switch:admin> portlogeventshow
ID      Event-Name      Disabled
-----
1       start          0
2       disable        0
3       enable         0
4       ioctl          0
5       Tx             0
6       Tx1            0
7       Tx2            0
8       Tx3            0
9       Rx             0
10      Rx1            0
11      Rx2            0
12      Rx3            0
13      stats          0
14      scn            0
15      pstate        0
16      reject        0
17      busy          0
18      ctin          0
19      ctout         0
20      errlog        0
21      loopscn       0
22      create        0
23      debug         1
24      nbrfsm        0
25      timer         0
26      sn            0
27      fcin          0
28      fcout         0
29      read          0
30      write         0
31      err           0
32      frame         0
33      msRemQ        0
34      msRemR        0
35      nsRemQ        0
36      nsRemR        0
37      rscn          0
38      state         0
39      xalloc        0
40      xfree         0
40      xfree         0
```

40	xfree	0
41	xerr	0
42	xstate	0
43	seq	0
44	seqst	0
45	iu	0
46	payload	0
47	zone	0
48	cmd	0
49	event	0
50	msg	0
51	switch	0
52	ficonq	0

### See Also

[portLogTypeDisable](#)

[portLogTypeEnable](#)



portLoginShow

Displays port logins.

Synopsis

```
portloginshow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display port login information. Some information varies with the switch model and port type. The following lines display:

Type	Type of login: fe - FLOGI, Fabric Login to Fabric F_Port. ff - PLOGI, Process Login to specific N- Ports or well-known address like Name Server. fd - FDISC, Virtual N_Port login.
PID	The port 24-bit D_ID.
WWN	The port Worldwide Name.
credit	The credit for this login as appropriate, this is BB (Buffer to Buffer) Credit for FLOGIs and EE (End to End) Credit for PLOGIs.
df_sz	The default frame size for this login.
cos	Class of Services supported. This can be a combination of the following bit: 4 - Class of Service includes class 2. 8 - Class of Service includes class 3.

There is further information about the login after the above columns. This can include the DID (destination identifier) that the port is logged on to.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type.</p>

## Example

To display login information for port 23:

```
switch:admin> portloginshow 2
Type  PID      World Wide Name      credit df_sz cos
=====
fe  201700  21:00:00:e0:8b:05:a3:c9  3   2048   8  scr=1
ff  201700  21:00:00:e0:8b:05:a3:c9   0     0   8  d_id=FFFC20
ff  201700  21:00:00:e0:8b:05:a3:c9   0     0   8  d_id=FFFFFC
```

## See Also

[fcProbeShow](#)  
[portShow](#)

## portLogPdisc

Sets or clears the debug\_pdisc\_flag.

### Synopsis

```
portlogpdisc lvl
```

### Availability

admin

### Description

Use this command to set or clear the debug\_pdisc\_flag.

### Operands

This command has the following operand:

lvl	Specify either 0 to clear the flag or 1 to set the pdisc_flag.
-----	--

### Example

To set the pdisc\_flag:

```
switch:admin> portlogpdisc 1
PDISC log setting = 1
```

## portLogReset

Enables the port log facility.

### Synopsis

```
portlogreset
```

### availability

admin

### Description

Use this command to enable the port log facility.

See [portLogClear](#) for events that might disable the port log facility.

### Operands

none

### Example

To enable the port log:

```
switch:admin> portlogreset
```

### See Also

[portLogClear](#)

## portLogResize

Resizes the port log to the specified number of entries.

### Synopsis

```
portlogresize num_entries
```

### availability

admin

### Description

Use this command to resize the port log to specified number of entries. If `num_entries` is less than the already configured port log size, no change is effected.

### Operands

This command has the following operands:

<code>num_entries</code>	Specify the number of entries to which portlog needs to be resized. The valid range of values is 8,192 to 16,384.
--------------------------	---

### Operands

none

### Example

To resize the portlog:

```
switch:admin> portlogresize 10000
```

### See Also

[portLogDump](#)

## portLogShow

Displays the port log.

### Synopsis

```
portLogShow [count, saved, portid]
```

### Availability

all users

### Description

Use this command to display the port log, page by page.

The [portLogShow](#) command displays the same information as [portLogDump](#), but it enables you to press **Enter** after each page of output.

Port logs are circular log files in the switch firmware, which can save up to 8000 entries per logical switch in v4.1.x. When the log is full, the newest log entries delete the oldest log entries. Port logs capture switch-to-device, device-to-switch, switch-to-switch, some device-to-device, and control information.

If the port log is disabled, the following message displays as the first line. See the [portLogClear](#) command for more information.

```
WARNING: port log is disabled
```

The following information displays for each log entry:

Time	Displays the event date and time in milliseconds.
Task	Displays the name of the internal switch procedure that logged the event.
Event	Displays the task event that generated log entry.
Port #	Displays the Port number that logged the event.
Cmd	Defined by the event. See the <i>hp StorageWorks Fabric OS 4.2.x Procedures User Guide</i> for more information.
Args	Displays more information about the event. For ioctl events, these are the I/O control arguments For Tx and Rx, these are the first two header words and word four of the FC-PH frame along with the first word of the payload and internal decoding field.

For a full explanation of the information displayed by this command, see the *hp StorageWorks Fabric OS 4.2.x Procedures User Guide*.

## Operands

This command has the following operands:

<code>count</code>	Specify the maximum number of lines to display. Only the most recent count entries are displayed. This operand is optional.
<code>saved</code>	Specify a non-zero value to display the saved port log from the last switch fault. See <a href="#">upTime</a> for a list of conditions that cause a fault. The <code>count</code> is ignored when displaying the saved log. This operand is optional.
<code>portid</code>	Specify the area number of port to be displayed. If a port area number is specified, all other ports on the switch are ignored. This operand is optional.

## Example

To view the port log for a port:

```
switch:admin> portlogdump 26
```

time	task	event	port	cmd	args
16:56:25.588	PORT	debug	26		00c0ffee,00fd0188,00000000,00000001
16:56:35.470	PORT	Tx	26	40	02ffffffd,00ffffffd,0045ffff,14000000
16:56:35.480	PORT	debug	26		00c0ffee,00fd018a,14000000,00000001
16:56:35.491	PORT	debug	26		aaaaaaaa,00140000,00000000,00000000
16:56:35.491	PORT	debug	26		beb01020,00000186,00000000,ffffffff
16:56:35.492	PORT	Rx	26	0	c0ffffffd,00ffffffd,00450045
16:56:45.592	PORT	debug	26		aaaaaaaa,00140000,00000000,00000000
16:56:45.592	PORT	debug	26		beb01020,0000018c,00000000,ffffffff
16:56:45.592	PORT	Rx	26	40	02ffffffd,00ffffffd,0046ffff,14000000
16:56:45.592	PORT	Tx	26	0	c0ffffffd,00ffffffd,00460046
16:56:45.593	PORT	debug	26		00c0ffee,00fd0190,00000000,00000001
16:56:55.471	PORT	Tx	26	40	02ffffffd,00ffffffd,0047ffff,14000000
16:56:55.471	PORT	debug	26		00c0ffee,00fd0192,14000000,00000001
16:56:55.473	PORT	debug	26		aaaaaaaa,00140000,00000000,00000000
16:56:55.473	PORT	debug	26		beb01020,0000018e,00000000,ffffffff
16:56:55.473	PORT	Rx	26	0	c0ffffffd,00ffffffd,00470047
16:57:03.282	PORT	Tx	26	204	02fffc02,00fffc61,0048ffff,01000000
16:57:03.283	PORT	debug	26		00c0ffee,00020196,01000000,00000001
16:57:03.284	PORT	debug	26		aaaaaaaa,00140000,00000000,00000000
16:57:03.284	PORT	debug	26		beb01020,00000194,00000000,ffffffff
16:57:03.284	PORT	Rx	26	0	c0fffc61,00fffc02,00480048
16:57:05.557	PORT	debug	26		aaaaaaaa,00140000,00000000,00000000
16:57:05.557	PORT	debug	26		beb01020,00000198,00000000,ffffffff
16:57:05.557	PORT	Rx	26	40	02ffffffd,00ffffffd,0049ffff,14000000
16:57:05.558	PORT	Tx	26	0	c0ffffffd,00ffffffd,00490049
16:57:05.558	PORT	debug	26		00c0ffee,00fd019c,00000000,00000001

## See Also

[portLogClear](#)

[portLogDump](#)

[upTime](#)



## portLogShowPort

Displays the port log of specified port, with page breaks.

### Synopsis

```
portlogshowport [portid]
```

### Availability

all users

### Description

Use this command to display the port log, showing 22 entries at a time. It is identical to [portLogDumpPort](#), except that [portLogDumpPort](#) does not prompt the user to press **Enter** between each page of output.

If the port log is disabled, the following message is printed as the first line (see the [portLogClear](#) for details):

```
WARNING: port log is disabled
```

See the [portLogDump](#) command for more information on the data returned by this command.

### Operands

This command has the following operand:

<i>portid</i>	Specify a non-zero value that specifies which port will be displayed.
---------------	---

## Example

To display a port log for port 24:

```
switch:admin> portlogshowport 24
time          task          event  port cmd  args
-----
18:24:25.648  PORT          debug  59   ccca0000,0000002c,0000001f,00000000
08:35:27.899  tReceive      pstate 14   LR2
08:35:27.916  tReceive      pstate 14   AC
08:35:28.416  interrupt     scn    14   1
08:35:28.433  tFabric       ioctl  14   90  101d9910,0
08:35:28.433  tFabric       Tx     14  164 02ffffffd,00ffffffd,0005ffff,10000000
08:35:28.433  tReceive      Rx     14   0  c0ffffffd,00ffffffd,00050006
08:35:28.433  tReceive      Rx     14  164 03ffffffd,00ffffffd,00050006,02000000

--- <output truncated> ---
```

## See Also

[portLogClear](#)

[portLogShow](#)

[upTime](#)

## portLogTypeDisable

Disables the port log of a specified type.

### Synopsis

```
portlogtypedisable type
```

### Availability

admin

### Description

Use this command to disable the port log for a specified port log type.

### Operands

This command has the following operand:

<i>type</i>	Specify a non-zero value that corresponds to the port type to be disable. The values corresponding to different log types can be obtained by running <a href="#">portLogEventshow</a> .
-------------	---

### Example

To disable event 2 from reporting to the portlog:

```
switch:admin> portlogtypedisable 2
```

### See Also

[portLogEventshow](#)

[portLogTypeEnable](#)

## portLogTypeEnable

Enables the port log of a specified type.

### Synopsis

```
portlogtypeenable type
```

### Availability

admin

### Description

Use this command to enable the port log for a specified port log type.

### Operands

This command has the following operand:

<i>type</i>	Specify a non-zero value that corresponds to the port type to be disable. The values corresponding to different log types can be obtained by running <a href="#">portLogEventshow</a> .
-------------	---

### Example

To enable event 2 to report to the port log:

```
switch:admin> portlogtypeenable 2
```

### See Also

[portLogEventshow](#)  
[portLogTypeDisable](#)

## portLoopbackTest

Functional test of port N->N path.

### Synopsis

```
portLoopbackTest [--slot number][-nframes count]
                 [-lb_mode mode][-spd_mode mode][-ports itemlist]
```

### Availability

admin

### Description

Use this command to verify the functional operation of the switch by sending frames from the port N transmitter and looping them back into the same port N receiver. The loopback is done at the parallel loopback path. The path exercised in this test does not include the media or the fiber cable.

Only one frame is transmitted and received at a time. No external cable is required to run this test. The port LEDs flicker green rapidly while the test is running.

Following is the test method:

1. Set all ports for parallel loopback.
2. Create a frame F of maximum data size (2,112 bytes).
3. Transmit frame F through port N.
4. Pick up the frame from the same port N.
5. Check the eight statistic error counters for nonzero values:
6. ENC\_in, CRC\_err, TruncFrm, FrmTooLong, BadEOF, Enc\_out, BadOrdSet, DiscC3
7. Check if the transmit, receive, or class 3 receiver counters are stuck at some value.
8. Check if the number of frames transmitted is not equal to the number of frames received.
9. Repeat steps 2 through 7 for all ports present until:
  - The number of frames (or *passcount*) requested is reached.
  - All ports are marked bad.

At each pass, the frame is created from a different data type. If seven passes are requested, seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first. The seven data types are:

- 1) CSPAT: 0x7e, 0x7e, 0x7e, 0x7e, ...
- 2) BYTE\_LFSR: 0x69, 0x01, 0x02, 0x05, ...
- 3) CHALF\_SQ: 0x4a, 0x4a, 0x4a, 0x4a, ...
- 4) QUAD\_NOT: 0x00, 0xff, 0x00, 0xff, ...
- 5) CQTR\_SQ: 0x78, 0x78, 0x78, 0x78, ...
- 6) CRPAT: 0xbc, 0xbc, 0x23, 0x47, ...
- 7) RANDOM: 0x25, 0x7f, 0x6e, 0x9a, ...

Because this test does not include the media or the fiber cable in its test path, its results combined with the results of [crossPortTest](#) and [spinSilk](#) (both of which loop frames using an external loopback cable) can be used to determine which components of the switch are faulty.

## Operands

This command has the following operands:

<code>--slot number</code>	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed port count products.
<code>-nframes count</code>	Specify the number of frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10.
<code>-lb_mode mode</code>	Specify the loopback mode for the test. By default, this test uses internal loopback. Valid values are as follows: <ul style="list-style-type: none"><li>■ 1 Port Loopback (loopback plugs)</li><li>■ 2 External (SERDES) loopback</li><li>■ 5 Internal (parallel) loopback</li></ul>

- `-spd_mode mode` Specify the speed mode for the test. For 1 Gbit/sec only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.
- 0: set all ports' speed for auto-negotiate.
  - 1: set all ports' speed to lock at 1 Gbit/sec.
  - 2: set all port's speed to lock at 2 Gbit/sec.
- For `lb_mode == 0,1` the following speed modes are available to test the speed negotiation:
- 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbit/sec.
  - 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbit/sec.
  - 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbit/sec.
  - 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbit/sec.
- For `lb_mode == 2,3` the following speed modes are available to test FIFO underrun.
- 3,5: set all even ports' speed for 2 Gbit/sec, set all odd ports' speed for 1 Gbit/sec.
  - 4,6: set all even ports' speed for 1 Gbit/sec, set all odd ports' speed for 2 Gbit/sec.
- `-ports itemlist` Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option may be used to restrict testing to the specified ports.

## Example

To run a functional test of a connection:

```
switch:admin> portloopbacktest -ports 1/38-1/45 -nframes 1 -lb_mode 1
Running Port Loopback Test ....
passed.
```

## Diagnostics

Following are possible error messages if failures are detected:

DATA  
ERRSTAT  
INIT  
PORTDIED  
STATS  
TIMEOUT  
XMIT

## See Also

[camTest](#)  
[centralMemoryTest](#)  
[cmemRetentionTest](#)  
[cmiTest](#)  
[crossPortTest](#)  
[itemList](#)  
[portRegTest](#)  
[spinSilk](#)  
[sramRetentionTest](#)



## portname

Assigns or displays a port name.

### Synopsis

```
portname [slotnumber/]portnumber, "portname"
```

### Availability

admin

### Description

Use this command to assign or display a port name. Both `port_number` and `port_name` operands are optional for this command.

With both the operands present, the port name string will be assigned to the port. With only the port name operand, the previously assigned port name will be displayed. With no operands, the port names of all the ports present will be displayed.

The port name is a string of 32 characters or fewer. It can consist of white spaces or printable characters, excluding the characters comma ( , ) and semicolon ( ; ). By default, a port has no name until it is explicitly assigned by the user.

A null string (that is, no `port_name` specified) is used as the default port name when a port has no user-assigned name. A port name can be reset to the default value by executing the [portPerfShow](#) command with the second operand a null string.

Like all other configurable port attributes, port name persists across reboots and power cycles. It will not be affected by [configDefault](#) command, but it will be cleared by [portCfgDefault](#).

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.</p>
portname	<p>Specify a port name. The port name is a character string from 1 to 32 characters. This operand must be enclosed in quotation marks. This operand is required.</p>

## Example

To name to a port:

```
switch:admin> portname 1/3, "Tape drive 5"
Committing configuration...done.
Tape drive 5
switch:admin> portname 1/3
Tape drive 5
```

## See Also

[configDefault](#)  
[portCfgDefault](#)  
[portShow](#)

portPerfShow

Displays port throughput performance in bytes, kilobytes, or megabytes.

Synopsis

```
portPerfShow [interval]
```

Availability

all users

Description

Use this command to display throughput information for all ports on the switch (8 or 16 columns, depending on the switch model). One output line is displayed per interval (or second if no interval is specified) until return, **Ctrl-C**, or **Ctrl-D** is pressed.

This command displays the number of bytes received plus the number of bytes transmitted per interval. Throughput values are displayed as either bytes, kilobytes (k), or megabytes (M).

Operands

This command has the following operand:

interval                      Specify the interval, in seconds, between each sample. This operand is optional.

Example

To display port throughput for a switch:

```
switch:admin> portperfshow
```

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
0	0	0	0	0	0	0	0	0	0	0	408	0	0	0	0	0
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	408

## See Also

[portStatsShow](#)

portRegTest

Reads and writes test of the ASIC SRAMs and registers.

Synopsis

```
portRegTest [--slot number][--ports itemlist]
[-skiptests mask][-verbose mode]
```

Availability

admin

Description

Use this command to verify that SRAM and register data bits in each ASIC can be independently written and read.

The test method used is to write a walking 1 pattern to each bit location. This is done by writing a pattern of 0x00000001 to register N. Read and ensure that the same pattern previously written is read back. Shift the pattern to the left by 1 bit (to 0x00000002)and, repeat the write, read, and compare cycle. Shift again and repeat until the last writable bit in register N is reached (0x80000000 for a 32-bit register).

For example, a 6-bit register is effectively tested with the following patterns:

0x0001	0x0002	0x0004	0x0008
0x0010	0x0020	0x0040	0x0080
0x0100	0x0200	0x0400	0x0800
0x1000	0x2000	0x4000	0x8000

Repeat these steps until all ASIC SRAMs and registers are tested.

Operands

This command has the following operands:

--slot number	Specify the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is 0.
--ports itemlist	Specify a list of blade ports to test. By default all the blade ports in the specified slot will be used. See <a href="#">itemList</a> help pages for further details.

<code>-skiptests mask</code>	A bit mask that defines which of the register test subtests to skip. By default, all subtests will be performed. Valid mask values include one or more of the following: 0x2    Skip retry register test. 0x4    Skip statistics register test. 0x8    Skip walk-1 test. 0x10   Skip credit counter test.
<code>-verbose mode</code>	Specify a non-zero value to enable verbose mode. The default value is to disable this mode.

## Example

To run a bit write/read test of the ASIC SRAMs and registers:

```
switch:admin> portregtest -ports 1/0-1/15
Running Port Register Test ....
Test Complete: "portregtest" Pass 1 of 1
Duration 0 hr, 0 min & 33 sec (0:0:33:447).
passed.
```

## Diagnostics

When this command detects failure(s), the test might report one or more of the following error messages:

```
BUS_TIMEOUT
REGERR
REGERR_UNRST
```

## See Also

[camTest](#)  
[centralMemoryTest](#)  
[cmemRetentionTest](#)  
[cmiTest](#)  
[crossPortTest](#)  
[itemList](#)  
[portLoopbackTest](#)  
[spinSilk](#)  
[sramRetentionTest](#)

portRouteShow

Displays routing tables for a port.

Synopsis

```
portRouteShow [slotnumber/]portnumber
```

Availability

all users

Description

Use this command to display the port address ID and the contents of the following port routing tables:

External unicast routing table	<p>Shows unicast frame routing to another switch element in the fabric. Output format is</p> <pre>domain_number: ports_bitmap</pre> <p>where:</p> <p>domain_number is the switch element number that a unicast frame can reach from the portnumber port.</p> <p>ports_bitmap contains all output ports, in bitmap hex format, that can forward unicast frames from port number to domain number.</p> <p>This table contains at least one entry for each active port:</p> <pre>local_switch_domain_number: 0x10000</pre> <p>This is for routing unicast frames designated to the embedded port of the local switch element.</p>
Internal unicast routing table	<p>Lists all ports in the local switch that a unicast frame can reach from portnumber. Format is</p> <pre>destination_port: output_ports_bitmap</pre> <p>Because the destination_port is in the local switch, output_ports_bitmap usually contains one bit with a bit position number representing the destination_port number.</p>

Multicast routing table	<p>Shows multicast frame routing to the destination multicast group. Output format is:</p> <pre>mcast_group_number: (mcast_group_id) ports_bitmap</pre> <p>where</p> <p><code>mcast_group_number</code> is the multicast group number</p> <p><code>mcast_group_id</code> is the multicast frame destination ID</p> <p><code>ports_bitmap</code> is a hex bitmap of all output port numbers that can forward a multicast frame from the portnumber to <code>mcast_group_id</code></p>
Broadcast routing table	<p>A bitmap, containing all ports reachable by a received broadcast frame. Bit 16 of the bitmap is always set to allow the switch element to receive broadcast frames.</p>

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>



## Example

To display the routing tables for a port:

```
switch:admin> portrouteshow 7/15
port address ID: 0x030f00
external unicast routing table:
  1: 0x100 (vc=2)
  2: 0x100 (vc=2)
3: 0x10000 (vc=0)
  4: 0x100 (vc=2)
  5: 0x1 (vc=4)
  6: 0x1 (vc=4)
  7: 0x1 (vc=4)
  8: 0x1 (vc=4)
  9: 0x100 (vc=2)
 10: 0x100 (vc=2)
 11: 0x100 (vc=2)
 12: 0x100 (vc=2)
 14: 0x100 (vc=2)
 15: 0x1 (vc=4)
 16: 0x100 (vc=2)
 17: 0x1 (vc=4)
 18: 0x100 (vc=2)
internal unicast routing table:
 15: 0x1000 (vc=5)
 47: 0x1 (vc=5)
multicast routing table:
broadcast routing table:
 0x10000
```

## See Also

[bcastShow](#)

[fabricShow](#)

[switchShow](#)

[topologyShow](#)

[urouteShow](#)

**portShow**

Displays port status.

**Synopsis**

```
portShow [slotnumber/]portnumber
```

**Availability**

all users

**Description**

Use this command to display status information for a port, as shown in [Table 13](#). Information varies with the switch model and port type.

**Table 13: PortShow Display Fields**

Field	Description
portCFlags	Port control flags.
portFlags	Bit map of port status flags.
portType	Port type and revision numbers.
portState	Port SNMP state: Online - Up and running Offline - Not online, portPhys gives details Testing - Running diagnostics Faulty - Failed diagnostics
portPhys	Port physical state: No_Card - No interface card present No_Module - No module (SFP or other) present No_Light - Module not receiving light No_Sync - Receiving light but out of sync In_Sync - Receiving light and in sync Laser_Flt - Module is signaling a laser fault Port_Flt - Port marked faulty Diag_Flt - Port failed diagnostics Lock_Ref - Locking to the reference signal

**Table 13: PortShow Display Fields (Continued)**

Field	Description
portScn	Last state change notification for port.
portId	24-bit D_ID for port.
portWwn	Port WWNs of devices connected.
Distance	The port's long distance level.
Speed	The port's fixed speed level or negotiated speed level: 1 Gb/s - Fixed speed of 1 Gb per second. N1 Gb/s - Negotiated speed of 1 Gb per second. 2 Gb/s - Fixed speed of 2 Gb per second. N2 Gb/s - Negotiated speed of 2 Gb per second. Negotiating - The speed of the port is being determined.
Interrupts	Total number of interrupts.
Unknown	Interrupts that are not counted elsewhere.
Lli	Low-level interface (physical state, primitive seqs).
Proc_rqrd	Frames delivered for embedded N_Port processing.
Timed_out	Frames that have timed out.
Rx_flushed	Frames requiring translation.
Tx_unavail	Frames returned from an unavailable transmitter.
Free_buffer	Free buffer available interrupts.
Overrun	Buffer overrun interrupts.
Suspended	Transmission suspended interrupts.
Parity_err	Real Tx data parity error.
2ndary_parity_err	Secondary Tx data parity error. These are not real Tx data parity errors but rather forced by the ASIC due to certain central memory errors so that the transmitter will abort the frame. This field will only be displayed when there are errors.
CMI_bus_err	Control message interface errors.

The second column displays link error status block counters.

The third column displays the number of F\_RJTs and F\_BSYs generated. For L\_Ports, the third column also displays the number of LIPs received, number of LIPs transmitted, and the last LIP received.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

Example

To display the status for a specified E\_Port:

```
switch:admin> portshow 1/5
portName:
portDisableReason: None
portCFlags: 0x1
portFlags: 0xc228057      PRESENT ACTIVE E_PORT G_PORT U_PORT LOGIN LED ACCEPT
portType: 4.1
portState: 1      Online
portPhys: 6      In_Sync
portScn: 5      E_Port      Trunk master port,
portId: 010500
portWwn: 20:05:00:60:69:80:03:32
portWwn of device(s) connected:
None
Distance: normal
portSpeed: N2Gbps

Interrupts:      1086      Link_failure: 0      Frjt:      0
Unknown:      0      Loss_of_sync: 0      Fbsy:      0
Lli:      0      Loss_of_sig: 0
Proc_rqrd:      1086      Protocol_err: 0
Timed_out:      0      Invalid_word: 0
Rx_flushed:      0      Invalid_crc: 0
Tx_unavail:      0      Delim_err: 0
Free_buffer:      0      Address_err: 0
Overrun:      0      Lr_in: 0
Suspended:      0      Lr_out: 0
Parity_err:      0      Ols_in: 0
2_parity_err:      0      Ols_out: 0
CMI_bus_err:      0
```

See Also

[switchShow](#)

## portStats64Show

Displays the 64-bit hardware statistics for a port.

### Synopsis

```
portstats64show [slotnumber/]portnumber
```

### Availability

all users

### Description

Use this command to display the 64-bit hardware statistics for a port.

### Operands

This command has the following operands:

<code>slotnumber</code>	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
<code>portnumber</code>	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Example

To display the 64-bit hardware statistics for a port:

```
switch:admin> portstats64show 9/1
stat64_wtx      0          top_int : 4-byte words transmitted
0              bottom_int : 4-byte words transmitted
stat64_wrx      0          top_int : 4-byte words received
0              bottom_int : 4-byte words received
stat64_ftx      0          top_int : Frames transmitted
0              bottom_int : Frames transmitted
stat64_frx      0          top_int : Frames received
0              bottom_int : Frames received
stat64_c2_frx   0          top_int : Class 2 frames received
0              bottom_int : Class 2 frames received
stat64_c3_frx   0          top_int : Class 3 frames received
0              bottom_int : Class 3 frames received

--- <output truncated> ---
```

## See Also

[portstatsclear](#)

[portStatsShow](#)

## portstatsclear

Clears the hardware statistics of a specified switch port.

### Synopsis

```
portstatsclear [slotnumber/]portnumber
```

### Availability

admin

### Description

Use this command to clear the hardware statistics for a specified switch port. At the same time, this command also clears the hardware statistics for the associated ports in the target port quad.

### Operands

This command has the following operands:

<code>slotnumber</code>	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
<code>portnumber</code>	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

### Example

To clear the hardware statistics for a port:

```
switch:admin> portstatsclear 8/5
```



**See Also**

[portStatsShow](#)

## portStatsShow

Displays port hardware statistics.

### Synopsis

```
portStatsShow [slotnumber/]portnumber
```

### Availability

all users

### Description

Use this command to display port hardware statistics counters.

stat_wtx	4-byte words transmitted.
stat_wrx	4-byte words received.
stat_ftx	Frames transmitted.
stat_frx	Frames received.
stat_c2_frx	Class 2 frames received.
stat_c3_frx	Class 3 frames received.
stat_lc_rx	Link control frames received.
stat_mc_rx	Multicast frames received.
stat_mc_to	Multicast timeouts.
stat_mc_tx	Multicast frames transmitted.
tim_rdy_pri	Time R_RDY high priority.
tim_txcrd_z	Time BB_credit zero.
er_enc_in	Encoding errors inside frames.
er_crc	Frames with CRC errors.
er_trunc	Frames shorter than minimum.
er_toolong	Frames longer than maximum.
er_bad_eof	Frames with bad end-of-frame.
er_enc_out	Encoding error outside frames.
er_disc_c3	Class 3 frames discarded.

<code>fl_open</code>	Number of OPNyx sent.
<code>fl_opened</code>	Number of OPNyx received.
<code>fl_openfr</code>	Number of OPNfr sent.
<code>fl_cls_idle</code>	CLS sent due to loop idle.
<code>fl_cls_rx</code>	CLS received when OPEN.
<code>fl_bb_stall</code>	OPN/CLS BB_Credit stalls.
<code>fl_cf_alloc</code>	Number of CFIFOs allocated.
<code>fl_cf_opn</code>	CFIFOs delivered when OPENED.
<code>fl_cf_full</code>	Number of CFIFOs full stalls.
<code>fl_cf_na</code>	CFIFO not available stalls.
<code>fl_trig_age</code>	Number of age count triggers.
<code>fl_trig_lp</code>	Number of loop not busy triggers.
<code>open</code>	Number of times the FL_Port entered OPEN state.
<code>transfer</code>	Number of times the FL_Port entered TRANSFER state.
<code>opened</code>	Number of times the FL_Port entered OPENED state.
<code>starve_stop</code>	Loop tenancies stopped due to starvation.
<code>fl_tenancy</code>	Number of times FL_Port had loop tenancy.
<code>nl_tenancy</code>	Number of times NL_Port had loop tenancy.
<code>frame_nozone</code>	Frames rejected due to zone protection.

## Operands

This command has the following operands:

<code>slotnumber</code>	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
<code>portnumber</code>	Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.

## Example

To display the basic set of statistics for a port:

```
switch:admin> portstatshow 7/15
stat_wrx      3272      4-byte words received
stat_ftx      104       Frames transmitted
stat_frx      124       Frames received
stat_c2_frx    0        Class 2 frames received
stat_c3_frx    124      Class 3 frames received
stat_lc_rx     0        Link control frames received
stat_mc_rx     0        Multicast frames received
stat_mc_to     0        Multicast timeouts
stat_mc_tx     0        Multicast frames transmitted
tim_rdy_pri    6189438  Time R_RDY high priority
tim_txcrd_z    31       Time BB_credit zero
er_enc_in      0        Encoding errors inside of frames
er_crc         0        Frames with CRC errors
er_trunc       0        Frames shorter than minimum
er_toolong     0        Frames longer than maximum
er_bad_eof     0        Frames with bad end-of-frame
er_enc_out     18       Encoding error outside of frames
er_disc_c3     0        Class 3 frames discarded
open           106      loop_open
transfer       106      loop_transfer
opened         104      FL_Port opened
starve_stop    0        tenancies stopped due to starvation
fl_tenancy     565      number of times FL has the tenancy
nl_tenancy     48       number of times NL has the tenancy
```

## See Also

[portErrShow](#)

[portShow](#)

# portswap

Swaps area numbers of two switch ports.

## Synopsis

```
portswap [slotnumber/]port1 [slotnumber/]port2
```

## Availability

admin

## Description

Use this command to swap area numbers for a pair of switch ports. Both switch ports must be disabled prior to executing this command.

## Operands

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).  The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
port1	Specify the port number where you want to swap the area ID number.
port2	Specify the port number where you want to swap the port1 area ID number.

## Example

To swap area numbers between a pair of ports:

```
switch:admin> portswap 1/2 2/5
```

## See Also

[portDisable](#)  
[portEnable](#)  
[portShow](#)  
[portSwapShow](#)  
[switchShow](#)

## portSwapDisable

Disables the portswap feature.

### Synopsis

portswapdisable

### Availability

admin

### Description

Use this command to disable the portswap feature. The [portswap](#) command cannot be used after this feature is disabled.

### Operands

none

### Example

To disable the portswap feature:

```
switch:admin> portswapdisable  
done.
```

### See Also

[portDisable](#)  
[portEnable](#)  
[portShow](#)  
[portSwapEnable](#)  
[portSwapShow](#)  
[switchShow](#)

## portSwapEnable

Enables the portswap feature.

### Synopsis

portswapenable

### Availability

admin

### Description

Use this command to enable the portswap feature. The [portswap](#) command cannot be used unless the feature is first enabled with this command.

### Operands

none

### Example

To enable the portswap feature:

```
switch:admin> portswapenable
done.
```

### See Also

[portDisable](#)  
[portEnable](#)  
[portShow](#)  
[portSwapDisable](#)  
[portSwapShow](#)  
[switchShow](#)



## portSwapShow

Displays information for any ports for which area ID numbers have been swapped.

### Synopsis

portswapshow

### Availability

admin

### Description

Use this command to display port and area information for those ports whose area number is different from the default area number. The default area number of a port is the same as its switch port number.

### Operands

none

### Example

To display information for port area IDs that have been swapped:

```
switch:admin> portswapshow
PortSwap is enabled
No ports have been swapped
```

### See Also

[errShow](#)  
[portDisable](#)  
[portEnable](#)  
[portShow](#)  
[portswap](#)  
[portSwapDisable](#)

portSwapEnable

switchShow

## portTest

Performs a functional test of a switch in a live fabric.

### Synopsis

```
porttest [-ports itemlist] [-iteration count]  
[-userdelay time] [-timeout time] [-pattern pattern]  
[-patsize size] [-seed seed] [-listtype porttype]
```

### Availability

admin

### Description

Use this command to isolate problems to a single replaceable element and isolate problems to near-end terminal equipment, far-end terminal equipment, or transmission line. Diagnostics can be executed every day or on demand.

This command verifies the intended functional operation of the switch by sending frames from port M's transmitter, and looping the frames back through an external fiber cable into port M's receiver, thus exercising all the switch components from the main board, to the GBIC, to the fiber cable, to the SFPs (of the devices and the switch), and back to the main board.

The cables and SFPs connected should be of the same technology: a short-wavelength SFP (switch) port is connected to another short-wavelength SFP (device) port using a short-wavelength cable; a long wavelength port is connected to a long-wavelength port, and a copper port is connected to a copper port.

Only one frame is transmitted and received at a time. The port LEDs flicker green while the test is running.

The following port types are supported:

- E\_Ports
- F\_Ports (must support ELS ECHO)
- L\_Ports
- N->N loopback ports

This command will not run on any other port type.

The command performs the following actions:

1. Initiate tests on certain ports ([portTest](#) command).
2. Stop active tests on certain ports ([stopPortTest](#) command).
3. Get the snapshot of the test result ([portTestShow](#) command).

Once [portTest](#) is triggered, you can use [stopPortTest](#) to stop the test. See the [stopPortTest](#) command for more information.

View the current progress of [portTest](#) by running [portTestShow](#). See the [portTestShow](#) command for more information.

If there is a port type change during [portTest](#) execution, the test will continue on a given port as long as it can be supported and it is asked to do so. If a request was made to test all possible ports on a given switch, [portTest](#) will start a new test using the new port type to start a appropriate test.

## Options

This command has the following options:

<code>-ports itemList</code>	Specify a list of user ports to test. By default, all the user ports in the current slot will be assumed. You can set the current slot by issuing <code>setslot</code> command. See the <a href="#">itemList</a> help pages for further details.
<code>-iteration count</code>	Specify the number of times (or number of frames per port) to execute this test. Default value is 20. Valid values are: 0 Run the test on timeout mode. -1 Run forever.
<code>-userdelay time</code>	Specify the delay between frames sent by <code>porttest</code> in minutes. The default value is 10 minutes.
<code>-timeout time</code>	Specify the number of seconds to run the test. Setting the iteration to 0 will set the <code>porttest</code> into timeout mode. The default value is 0.
<code>-pattern</code>	Specify the pattern of the test packets payload. Default pattern type is random. Twenty types of predefined patterns are provided with the test. Use the <a href="#">datatype<sup>show</sup></a> command to see the types of pattern that are supported with <code>portTest</code> .
<code>-patsize size</code>	Specify the size of the pattern. Default size of the pattern is 1024 bytes. Valid range of values are 4 bytes through 2112 bytes.

<code>-seed seed</code>	Specify the seed pattern to be used with <code>pattern</code> . Default seed value is 0xaa.
<code>-listtype</code> <code>porttype</code>	Specify the type of ports to run <code>porttest</code> . The following values are predefined for <code>porttype</code> : -1 All ports. -2 All L_ports. -3 All F_ports. -4 All E_ports. -5 All Loopback ports. The default value is -1.

## Example

To run a functional test on an active switch:

```
switch:admin> porttest -ports 1/1-1/3
```

## See Also

[crossPortTest](#)  
[fportTest](#)  
[loopPortTest](#)  
[portLoopbackTest](#)  
[portTestShow](#)  
[spinFab](#)  
[stopPortTest](#)

## portTestShow

Displays information from [portTest](#).

### Synopsis

```
porttestshow [-ports itemlist]
```

### Availability

admin

### Description

Use this command to display a snapshot of information from [portTest](#). The following information displays:

- Pass/Fail information on a given port.
- Port type tested.
- Current State of portTest
  - NO TEST
  - TESTING
  - TEST DONE
- Type of ports asked to test
  - ALL\_PORTS
  - ALL\_E\_PORTS
  - ALL\_L\_PORTS
  - ALL\_F\_PORTS
  - ALL\_LB\_PORTS
  - or SINGLE\_PORT
- Pattern used in testing.
- Seed used in testing.
- User Delay value.
- Total iteration asked to test.
- Current test iteration.

- Total Fails on this test.
- Consecutive Fails on this test.
- [portTest](#) Start Time.
- [portTest](#) Stop Time.
- Timeout value.
- Error code if any.

## Options

This command has the following option:

`-ports itemlist` Specify a list of user ports to test. By default all the user ports in the current slot will be assumed. See [itemList](#) help pages for further details.

## Example

To display information from [portTest](#):

```
switch:admin> porttestshow 1
Port 1 : PASS
PortType: OTHER
PortInternalState: INIT
Pattern: 0x0 Seed: 0x0
TotalIteration: 0
TotalFail: 0
StartTime: NONE
StopTime: NONE
Timeout: 0
PortState: NO TEST
PortTypeToTest: NO_TEST
UserDelay: 0
CurrentIteration: 0
ConsecutiveFail: 0
ErrorCode: 0
```

## See Also

[crossPortTest](#)  
[fportTest](#)  
[loopPortTest](#)  
[portLoopbackTest](#)  
[portTest](#)  
[spinFab](#)  
[stopPortTest](#)

**powerOffListSet**

Sets slot power-off list order.

**Synopsis**

```
powerofflistset
```

**Availability**

admin

**Description**

Use this command to set the physical power-off slot order. The system-available power is compared to the system-demand power to determine if there is enough power to operate. If there is less power available than the demand, the power-off list is processed until there is enough power for the system to operate. The format of the display varies, depending on the switch model and the number of slots present.

When this command is executed, the first item displayed is the current power-off list order. Then you are prompted to make any changes and the new power-off list order is displayed. The command prompts you to verify and commit the changes.

**Operands**

none



Example

To modify the power-off list order:

```
switch:admin> powerofflistset
```

Slot	Current POL
10	1st
9	2nd
8	3rd
7	4th
4	5th
3	6th
2	7th
1	8th

```
1st slot to be power off: (1..10) [10] 7
2nd slot to be power off: (1..10) [9] 8
3rd slot to be power off: (1..10) [9]
4th slot to be power off: (1..10) [10]
5th slot to be power off: (1..4) [4] 1
6th slot to be power off: (2..4) [3] 2
7th slot to be power off: (3..4) [3]
8th slot to be power off: (4..4) [4]
```

Old POL	New POL	Power Off Order
10	7	1st
9	8	2nd
8	9	3rd
7	10	4th
4	1	5th
3	2	6th
2	3	7th
1	4	8th

```
Proceed to change the POL order? (yes, y, no, n): [no] y
```

See Also

- [chassisShow](#)
- [powerOffListShow](#)
- [psShow](#)
- [slotPowerOff](#)
- [slotPowerOn](#)
- [slotShow](#)

## powerOffListShow

Displays slot power-off list order.

### Synopsis

```
powerofflistshow
```

### Availability

all users

### Description

Use this command to display the order in which the physical slots will be powered off. The system-available power is compared to the system demand power to determine if there is enough power to operate. If there is less power available than the demand, then the power-off list is processed until there is enough power for the system to operate. The format of the display varies, depending on the switch model and the number of slots present.

### Operands

none

### Example

To display the slot power off list order:

```
switch:admin> powerofflistshow

Slot 10 will be powered off 1st
Slot  9 will be powered off 2nd
Slot  8 will be powered off 3rd
Slot  7 will be powered off 4th
Slot  4 will be powered off 5th
Slot  3 will be powered off 6th
Slot  2 will be powered off 7th
Slot  1 will be powered off 8th
```

**See Also**

[chassisShow](#)  
[powerOffListSet](#)  
[psShow](#)  
[slotPowerOff](#)  
[slotPowerOn](#)  
[slotShow](#)

## psShow

Displays power supply status.

### Synopsis

psShow

### Availability

all users

### Description

Use this command to display the current status of the switch power supplies.

The format of the display varies according to the switch model and number of power supplies present. Depending upon switch model, OEM serial ID data displays after each power supply status line.

The status of each supply is shown as:

OK	Power supply functioning correctly.
absent	Power supply not present.
Unknown	Unknown power supply unit installed.
Predicting Failure	Power supply is present, but predicting failure.
faulty	Power supply present but faulty (no power cable, power switch turned off, fuse blown, or other internal error).

### Operands

none

## Example

To view the status of the power supply for the current switch:

```
switch:admin> psshow  
  
Power Supply #1 is OK  
  DELTA DPS-1001AB-1E 23000000601 S1   IXD0116000747  
Power Supply #2 is absent  
Power Supply #3 is OK  
  DELTA DPS-1001AB-1E 23000000601 S1   IXD0116000757  
Power Supply #4 is absent
```

## See Also

[fanShow](#)

[tempShow](#)

## ptDataShow

Displays port data structures.

### Synopsis

```
ptdatashow [slot/]port
```

### Availability

all users

### Description

Use this command to display port data structures.

---

**Note:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

---

### Operands

This command has the following operands:

slot	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash (/) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
port	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Example

To display the port data structure for slot 1 port 1:

```
switch:admin> ptdatashow 1/1

Port Data Structure for slot: 1, port: 1

Bloom Data Pointers: bloomp = 0xc6eb7200 (fbloomp = 0x00000000)
-----
blm_regs          0xc9b17000      blm_proc_dir      0xc50d9f20
fab_ptr           0xc04f0000      fab_Iop           0xc04f0050
qdblm             0xc5702c00      chblm             0xc661b5a0
pt                0xc5701760      blm_miniS_handle  0xc57012e0

Bloom Local Variables
-----
blm_type  = 0x00000012  G_PORT  E_PORTto stop
blm_state = 0x00000001  ONLINE  p_phstate = IN_SYNC
blm_flags = 0x00000000  NORMAL
lab_mode  = 0x00       EFD
blm_port_type = Intra-blade      blm_rev          1
blm_initialized  0              my_domain        1
blm_quad_idx     1              blm_chip_idx     1
blm_miniS_idx    1              blm_blade_idx    1
--- <output truncated> ---
```

## ptPhantomShow

Displays the content addressable memory (CAM) tables.

### Synopsis

```
ptphantomshow [slot/]port
```

### Availability

all users

### Description

Use this command to display the CAM tables.

---

**Note:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

---

### Operands

This command has the following operands:

slot	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
port	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>



## Example

To display the port routing tables for slot 2 port 1:

```
switch:admin> ptphantomshow 2/1
Port Routing table for slot: 2, port: 1

The following alphas are private on some switch ports:
(alpha, UI port bitmap on the blade)

plt_cam table and plt_alpa table:
index      sid          plt_alpas      .....

plt_did table for this port:
ali  alpa  sid          ali  alpa  sid      .....
```

## ptPropShow

Displays port properties.

### Synopsis

```
ptpropshow [slot/]port | [slot] -all
```

### Availability

all users

### Description

Use this command to display the ASIC port properties for the specified port.

---

**Note:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

---

### Operands

This command has the following operands:

slot	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
port	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

[slot] -all

Specify which slot to operate on. The entire ports in the slot will be displayed. If `slot` is not specified, the current slot will be assumed. This operand is optional.

## Example

To display the port properties for slot 1 port 2:

```
switch:admin> ptpropshow 1/2
Port Property for slot: 1, port: 2

P2: [be,3,2],SP,CAP:[1,1,1,(1,1,0)],WWN: 00:00:00:00:00:00:00:00
```

## See Also

[chipPropShow](#)

[ptRegShow](#)

## ptRegShow

Displays ASIC port registers.

### Synopsis

```
ptpropshow [slot]/port
```

### Availability

all users

### Description

Use this command to display the contents of port registers.

---

**Note:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

---

### Operands

This command has the following operands:

slot	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
port	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Example

To display the port registers for slot 1 port 1:

```
switch:admin> ptregshow 1/1
Port Registers for slot: 1, port: 1

0xc9b17000: chip_id          0104          0xc9b17002: port_config      0a38
0xc9b17004: did_vc_map       0800          0xc9b17008: int_mask                 064f
0xc9b1700a: int_status       1020          0xc9b1700c: err_status              0003
0xc9b1700e: vc_config        00c0          0xc9b17010: buf_error               00000000
0xc9b17014: mem_bufline      00080008     0xc9b17018: mem_ctl                 1024
0xc9b1701a: mem_offset       0000          0xc9b1701c: port_ctl                0000
0xc9b1701e: quad_imask       c003          0xc9b17020: port_addr              00010000
0xc9b17024: lli_status       00040007     0xc9b17028: lli_ctl                00080180
0xc9b1702c: lli_def          00000000     0xc9b17030: lli_mask               00020000
0xc9b17034: prescaler0       000a          0xc9b17036: tod0                   0104
0xc9b17038: toc0             0007          0xc9b1703a: toc1                   0000
0xc9b1703c: toc_ctl         0000          0xc9b17044: putq_stat              ffffffff
--- <output truncated> ---
```

## ptRouteShow

Displays port routing properties.

### Synopsis

```
ptrouteshow [slot/]port
```

### Availability

all users

### Description

Use this command to display the ASIC routing table contents.

---

**Note:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

---

### Operands

This command has the following operands:

slot	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
port	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>

## Example

To display the port routing properties for slot 1 port 3:

```
switch:admin> ptrouteshow 1/3
Port Routing table for slot: 1, port: 3

port address ID: 0x130000
external unicast routing table:
internal unicast routing table:
multicast routing table:
broadcast routing table:
```

## See Also

[portRouteShow](#)

## ptStatsShow

Display port statistics properties.

### Synopsis

```
ptstatsshow [slot/]port
```

### Availability

all users

### Description

Use this command to display the port statistic properties for the specified port.

---

**Note:** This command is not intended for normal user operation and is available to provide supplemental information during system debug.

---

### Operands

This command has the following operands:

slot	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
port	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is required.</p>



## Example

To view port statistics properties on slot 1 port 3:

```
switch:admin> ptstatsshow 1/3
Port Statistics for slot: 1, port: 3

Connection type: BE
Configured Speed: 2

Interrupts:      60          Link_failure:      0
Unknown:         2          Loss_of_sync:      0
Lli:             20         Loss_of_sig:       0
Proc_rqrd:       40         Protocol_err:      0
Timed_out:       0          Invalid_word:      0
Rx_flushed:      0          Invalid_crc:       0
Tx_unavail:      0          Delim_err:         0
Free_buffer:     0          Address_err:       0
Overrun:         0          Lr_in:             0
Suspended:       0          Lr_out:            0
Parity_err:      0          Ols_in:            0
2_parity_err:    0          Ols_out:           0
CMI_bus_err:     0

--- <output truncated> ---
```

## See Also

[portStatsShow](#)

## quietMode

Sets or clears the shell quiet mode.

### Synopsis

```
quietMode [mode]
```

### Availability

all users (display)

admin (set/clear)

### Description

This command affects the output displayed on the switch console (telnet session only).

By default, quiet mode is off and all switch tasks can send output to the console. Some output is caused by asynchronous events, such as the fabric reconfiguring or devices logging in.

When quiet mode is on, only output produced by shell commands displays; all asynchronous output produced by other tasks suppresses. This is useful when driving a telnet session through a script that might not expect any asynchronous output.

### Operands

The following operand is optional:

mode	Clears quiet mode and all tasks print to the console; 1 sets quiet mode and only shell commands print.
------	--

The current value displays if no operand is specified.

**Example**

To display the current mode and then set it to on:

```
switch:admin> quietMode
quietMode: On

Usage: quietMode 0|1
0: to turn it off
1: to turn it on

switch:admin> quietMode 0
Quietmode is disabled.
```

## reboot

Reboots the switch.

### Synopsis

reboot

### Availability

admin

### Description

Use this command to reboot the switch. The reboot takes effect immediately as the switch resets and executes the normal power-on booting sequence.

While the switch is rebooting, the command line session is closed and all Fibre Channel ports are inactive. If the switch was part of a fabric, the remaining switches reconfigure.

---

**Note:** For the Core Switch 2/64, the [reboot](#) command reboots both logical switches and the active CP. If you are logged in to the standby CP, only that CP reboots and not the switches. For a SAN Director 2/128, only the active CP reboots. A confirmation message displays to verify that you want to reboot.

---

### Operands

none

### Example

To reboot the switch:

```
switch:admin> reboot
Rebooting...
```

### See Also

[fastBoot](#)

[switchReboot](#)

## routeHelp

Displays routing help commands.

### Synopsis

routeHelp

### Availability

all users

### Description

Use this command to display routing help commands.

### Operands

none

### Example

To view a list of routing related commands:

```
switch:admin> routehelp

bcastShow          Print broadcast tree information
dlsReset           Turn off Dynamic Load Sharing
dlsSet             Turn on Dynamic Load Sharing
dlsShow            Print state of Dynamic Load Sharing
fspfShow           Print FSPF global information
interfaceShow      Print FSPF interface information
iodReset           Turn off In-Order Delivery
iodSet            Turn on In-Order Delivery
iodShow            Print state of In-Order Delivery
linkCost           Set or print the FSPF cost of a link
LSDBShow           Print Link State Database entry
nbrStateShow       Print neighbor's summary information
nbrStatsClear      Reset FSPF neighbor's counters
topologyShow       Print paths to domain(s)
uRouteConfig       Configure static unicast route
uRouteRemove       Remove static unicast route
uRouteShow         Print port's unicast routing info
```

## See Also

[bcastShow](#)

[interfaceShow](#)

[urouteShow](#)

## saveCore

Saves or removes core files created by daemons.

### Synopsis

To FTP core files:

```
savecore [-f<core_file-list>...[-F][-h ip_address][-u
user_name][-a][-p password][-d remote directory]
```

To remove core files:

```
savecore [[-r<core-files-directory-list>|-R]
```

To list core files:

```
savecore /-l
```

### Availability

admin

### Description

Use this command to FTP core files, to remove core files, or to list core files. With no arguments, [saveCore](#) enters interactive mode.

### Options

This command has the following options:

-h ip-address	Specify a host-name if FTP requires it.
-u user_name	Specify a user-name for login in the above host-name default will be anonymous.
-p password	Specify a password for the above user-name.
-a	Specify to use anonymous FTP to download the core files. This option cannot be used with the -u option.
-d remote_directory	Specify the name of the remote directory into which the core files are copied. The directory will be created if it does not already exist. It is assumed that the user has sufficient privilege to create files at this location.

<code>-f</code> <code>core-file-directory-</code> <code>list</code>	Specify a list of the core file directories to transfer to a remote site. This list can be comma-separated directory list or just a single directory name. Only the standard core files directories can be specified ( <code>/core_files</code> and <code>/mnt/core_files</code> ); all other files or directories are ignored.
<code>-R</code>	Specify this option to remove all core files.
<code>-r</code> <code>core-file-directory-</code> <code>list</code>	Specify this option to remove core files under the directory list given. Removes all the core files under the listed directories. The directory list is a comma-separated list of core files directory and other files, if any, will be ignored. No confirmation will be made before removal.
<code>-l</code>	Specify this option to list all core files.

## Examples

To list all core files in a CP:

```
switch:admin> savecore -l
/core_files/panic/core.873
/core_files/zoned/core.1234
/core_files/zoned/core.5678
/mnt/core_files/nsd/core.873
/mnt/core_files/panic/core.873
```

To remove selected core files from a CP:

```
switch:admin> savecore -r
/core_files/panic/,/core_files/zoned/,/mnt/core_files/nsd/
Removing: /core_files/panic/
Removing: /core_files/zoned/
Removing: /mnt/core_files/nsd/
```

To remove selected core files from the CP (using multiple `-r` operands):

```
switch:admin> savecore -r /core_files/panic/ -r
/core_files/zoned/,/mnt/core_files
/nsd/
Removing: /core_files/panic/
Removing: /core_files/zoned/
Removing: /mnt/core_files/nsd/
```



To remove all core files:

```
switch:admin> savecore -R
removing core files under: /core_files/panic
removing core files under: /core_files/zoned
removing core files under: /mnt/core_files/nsd
removing core files under: /mnt/core_files/panic
```

To FTP all core files:

```
switch:admin> savecore -h 192.168.204.188 -u jsmith -d core_files_here -p
fexosophy -F
/core_files/panic/core.873:                1.12 kB  381.87 B/s
/core_files/zoned/core.1234:               1.12 kB  382.14 B/s
/core_files/zoned/core.5678:               1.12 kB  382.50 B/s
/mnt/core_files/nsd/core.873:              1.12 kB  381.93 B/s
/mnt/core_files/panic/core.873:            1.12 kB  381.90 B/s
Files transferred successfully!
```

To FTP selected core file directories:

```
switch:admin> savecore -h 192.168.204.188 -u jsmith -d core_files_here -p
password
-f /core_files/zoned/, /mnt/core_files/nsd/
/core_files/zoned//core.1234:              1.12 kB  382.60 B/s
/core_files/zoned//core.5678:              1.12 kB  381.95 B/s
/mnt/core_files/nsd//core.873:             1.12 kB  382.53 B/s
Files transferred successfully!
```

To remove all core files using the savecore management utility:

```
switch:admin> savecore
following 1 directories contains core files:
[ ]0: /mnt/core_files/panic

Welcome to core files management utility.

Menu
1(or R): Remove all core files
2(or F): FTP all core files
3(or r): Remove marked files
4(or f): FTP marked files
5(or m): Mark Files for action
6(or u): Un Mark Files for action
9(or e): Exit

Your choice: 1
           /mnt/core_files/panic

You have opted to remove ALL core files:-
Please confirm (Y/[N]): y
Removing files....
  removing core files under: /mnt/core_files/panic
Done!
switch:admin>
switch:admin> savecore
No core files found!
```

To FTP core files using the savecore management utility:

```
switch:admin> savecore
following 1 directories contains core files:
[ ]0: /core_files/zoned

Welcome to core files management utility.

Menu
1(or R): Remove all core files
2(or F): FTP all core files
3(or r): Remove marked files
4(or f): FTP marked files
5(or m): Mark Files for action
6(or u): Un Mark Files for action
9(or e): Exit

Your choice: F
/core_files/zoned
You have opted to FTP these core files:-
Please confirm (Y/[N]): y
Destination IP Address? 192.168.10.10
User Name [anonymous]? jsmith
Remote Directory [.]? brcd
Password: *****
/core_files/zoned/core.8323:          1.12 kB  382.40 B/s
Files transferred successfully!
```

To remove core files from a selected directory:

```
switch:admin> savecore
following 2 directories contains core files:
[ ]0: /core_files/nsd
[ ]1: /core_files/zoned

Welcome to core files management utility.

Menu
1(or R): Remove all core files
2(or F): FTP all core files
3(or r): Remove marked files
4(or f): FTP marked files
5(or m): Mark Files for action
6(or u): Un Mark Files for action
9(or e): Exit

Your choice: m
Enter File Number to mark: 1
Enter CR To Continue....

following 2 directories contains core files:
[ ]0: /core_files/nsd
[*]1: /core_files/zoned

Welcome to core files management utility.

Menu
1(or R): Remove all core files
2(or F): FTP all core files
3(or r): Remove marked files
4(or f): FTP marked files
5(or m): Mark Files for action
6(or u): Un Mark Files for action
9(or e): Exit

Your choice: r
/core_files/zoned

You have opted to remove core files under these directories:-
Please confirm (Y/[N]): y
Removing files....
removing core files under: /core_files/zoned
Done!
```

## secActiveSize

Displays the size of the active security database.

### Synopsis

```
secactivesize
```

### Availability

admin

### Description

Use this command to display the size of the active security database as “transaction” and “committed.” The “transaction” is the memory allocated by the security daemon to store the data. It is very close to the size sent to other switches and the size of defined security policies. The “committed” is how much space on disk it takes to store this information.

The “commit size” has a maximum of 64K. The “transaction size” has a maximum of 62K. If the commit size value is greater than 16 KB, then a 2.6 switch will not accept the data.

This command is intended strictly for debugging purposes by technical support staff. The information displayed might not be supported between releases and is subject to change arbitrarily.

---

**Note:** When security mode is enabled, this command can be issued from any switch in the fabric.

---

### Operands

none

## Example

To display the size of the active security database:

```
primaryfcs:admin> secactivesize
Size of Active Security Database:
  committed: 1088 bytes (max 65536)
  transaction: 59 bytes
```

## See Also

[secDefineSize](#)

[secGlobalShow](#)

## secDefineSize

Displays the size of the defined security database.

### Synopsis

```
secdefinesize
```

### Availability

admin

### Description

Use this command to display the size of the active security database as “transaction” and “committed.” The “transaction” is the memory allocated by the security daemon to store the data. It's very close to the size sent to other switches and the size of defined security policies. The “committed” is how much space on disk it takes to store this information.

The “commit size” has a maximum of 64K. The “transaction size” has a maximum of 62K. If the commit size value is greater than 16 KB, then a 2.6 switch will not accept the data.

This command is intended strictly for debugging purposes by technical support staff. The information displayed might not be supported between releases and is subject to change arbitrarily.

---

**Note:** When security mode is enabled, this command can be issued from any switch in the fabric.

---

### Operands

none

## Example

To display the size of the defined security database:

```
primaryfcs:admin> secdefinesize
Size of Defined Security Database:
  committed: 1088 bytes (max 65536)
  transaction: 59 bytes
```

## See Also

[secActiveSize](#)

[secGlobalShow](#)



secFabricShow

Displays security-related fabric information.

Synopsis

secfabricshow

Availability

all users

Description

This command displays the security-related information about the fabric.  
The information displayed is as follows:

Role	Displays whether the switch is the Primary FCS, Backup FCS, or Non FCS.
WWN	Displays the world wide name of the switch.
DId	Displays the Domain of the switch.
Status	Displays the security state of the switch. Ready - This switch is in a stable state. Busy - This switch is updating its security database. Error - This switch's security database is inconsistent with the Primary FCS.
Enet IP Addr	Displays the Ethernet IP address.
Name	Displays the switch name.
NoResp	Displays if the switch did not respond to the status query.
Unknown	Displays if the switch is in an unknown state

**Note:** When security mode is enabled, this command can be issued from any switch in the fabric.

Operands

none

## Example

To display security-related fabric information on the primary FCS switch:

```
switch:admin> secfabricshow
Role      WWN                               DId Status  Enet IP Addr  Name
=====
non-FCS   10:00:00:60:69:10:03:23            1 Ready   192.168.100.148 "nonfcs"
Backup    10:00:00:60:69:00:12:53            2 Ready   192.168.100.147 "backup"
Primary   10:00:00:60:69:22:32:83            3 Ready   192.168.100.135 "switch"
```

---

Secured switches in the fabric: 3

## See Also

[secPolicyDump](#)

[secPolicyShow](#)

## secFcsFailover

Enables a backup FCS switch to take over as primary FCS switch.

### Synopsis

```
secfcsfailover
```

### Availability

admin

### Description

Use this command to enable a backup FCS switch to take over as the primary FCS switch.

This command can be issued only on a backup FCS switch. After this command is issued, the primary FCS switch aborts its current transaction and moves the backup FCS switch to the top of the FCS list. The former primary FCS switch then activates the new policy set and the former backup FCS switch becomes the new primary FCS switch in the fabric.

The purpose of this command is to recover from a scenario in which all available access to the primary FCS switch is lost, such as the Ethernet and serial connections.

### Operands

none

### Example

To enable a backup FCS switch to take over as the primary FCS switch:

```
switch:admin> secfcsfailover
This switch is about to become the Primary FCS switch.
All transactions of the current Primary FCS switch will be aborted.
ARE YOU SURE (yes, y, no, n): [no] y

WARNING!!!
The FCS policy of Active and Defined Policy sets have been changed.
Review them before you issue secPolicyActivate again.
```

## See Also

[secFabricShow](#)  
[secModeDisable](#)  
[secModeEnable](#)  
[secModeShow](#)

## secGlobalShow

Displays the current internal security state information.

### Synopsis

```
secGlobalShow
```

### Availability

admin

### Description

Use this command to display security server (secd) specific information as a snapshot of its current state. The information can include some of the following:

- The version and general information
- The current status of the RCS transaction
- The active and defined sizes of the security database

This command is intended strictly for debugging purposes by technical support staff only. The information displayed might not be supported between releases and is subject to change arbitrarily.

---

**Note:** When security mode is enabled, this command can be issued from any switch in the fabric.

---

### Operands

none

## Example

To view the current security state:

```
primaryfcs:admin> secglobalshow
----General Security Infor----
flag 1, saveflag 1
transId 0
Queue Size 0
final RCA 0
reliablemsg 0
reliablePhase 0
Primary pub key: Exist
Primary Version 2
Primary WWN 10:00:00:60:69:90:02:53
Stamp 763828637
----The latest RCS STATUS----
RCS was enabled
sec_aca: free
RCS latest Phase: Completion
RCS Message ==> RCS transaction completes.
----DataBase STATUS----
Retry 0
Security Active DataSize 59 bytes
Active Sum 9c2a
Security Defined DataSize 59 bytes
Define Sum 9c2a
Zone Size 432 bytes
Zone sum 1855
sec_db: free
primaryDLPhase 6
----wwnDL State-----
domain 107 state 6
pid      tid      key      sec      usec
        769      6151     87052037  1048204774  173586
        769      6151     87052037  1048204774  173648
        769      6151     87052037  1048204775  441107
```

## See Also

[secActiveSize](#)

[secDefineSize](#)

## secHelp

Displays information about security telnet commands.

### Synopsis

sechelp

### Availability

all users

### Description

Use this command to display a list of security telnet commands.

### Operands

none

### Example

To display a list of security telnet commands:

```
switch:admin> sechelp

secFabricShow          Display security related fabric information
secFCSFailover         Force primary role to this FCS switch
secModeEnable          Enable security mode
secModeDisable         Disable security mode
secModeShow            Show current mode of security
secNonFCSPasswd        Set non FCS password
secPolicyAbort         Abort changes to defined policy
secPolicyActivate      Activate all policy sets
secPolicyAdd           Add members to a policy
secPolicyCreate        Create a policy
secPolicyDelete        Delete a policy
secPolicyFCSMove       Move a FCS member in the FCS list
secPolicyRemove        Remove members from a policy
secPolicySave          Save all policy sets and send to switches
secPolicyShow          Show members of one or more policies
secPolicyDump          Dump all policies
secStatsReset          Reset security statistics
secStatsShow           Display security statistics
secTempPasswdSet       Set temporary password
secTempPasswdReset     Reset temporary password
secTransAbort          Abort current transaction
secVersionReset        Reset version stamp
```

## secModeDisable

Disables security mode.

### Synopsis

secmodedisable

### Availability

admin

### Description

Use this command to disable security mode on all switches in the fabric. This command deletes both the defined and active security database.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To disable security mode:

```
primaryfcs:admin> secmodedisable
Warning!!!
About to disable security.
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
Removing Active FMPS...
done
Removing Defined FMPS...
done
Disconnecting current session.
```



**See Also**

[secFabricShow](#)

[secModeEnable](#)

[secModeShow](#)

## secModeEnable

Enables security mode.

### Synopsis

```
secmodeenable ["fcsmember;fcsmember"]
```

### Availability

admin

### Description

Use this command to enable security mode on all switches in the fabric. This command fails if any switch in the fabric is not capable of enforcing the security policies defined in the security database. If no operand is specified the command becomes interactive.

---

#### Note:

---

This command sets up security in the fabric by:

- Activating security mode on all switches in the fabric.
- Creating the security database, populated with a list of FCS switches in the FCS\_POLICY.
- Distributing the security database to all switches in the fabric.
- Resetting the root, factory, admin, and user account passwords on all FCS switches.
- Resetting the admin account password on all non-FCS switches.
- Disabling the root, factory, and user accounts on all non-FCS switches in the fabric.

The administrator is prompted to enter passwords for the following accounts:

- factory
- root
- admin

■ user

If the fabric is not in secure mode and one or more specified FCS switches is present in the fabric, the command must be issued on the first active FCS in the list.

If the fabric is not in secure mode and no specified FCS switches are present in the fabric, the command can be issued on any switch.

If the fabric is not in secure mode and this command is issued, the switch reboots.

If the fabric is in secure mode and no FCS switches are present in the fabric, the command can be issued on any switch. This is used to recover a secure fabric that has no FCS switch.

---

**Note:** Ensure that all users (using Fabric OS CLI or Web Tools) are logged off the fabric before enabling security mode; otherwise, users on non-FCS switches have their telnet sessions terminate.

A maximum of 80 WWNs can be specified in the FCS policy using the [secModeEnable](#) command. To add more WWNs use the [secPolicyAdd](#) command.

---

## Operands

This command has the following operand:

<code>fcsmember</code>	<p>Specify a list of FCS switches. The list of member switches must be enclosed in quotation marks and each member switch must be separated by semicolons. The members can be specified using Domain, WWN, or switch name format. For example:</p> <pre>5; 10:00:00:60:69:00:00:20; star1</pre> <p>If a member is specified by Domain, or switch name, the switch must be in the fabric or the command fails. This operand is optional. If no operand is specified the session becomes interactive and you are prompted to enter FCS member values.</p>
------------------------	---

**Example**

To enable a security policy that includes three FCS switches specified by domain, WWN address, and switch name:

```
fcsprimary:admin> secmodeenable
```

```
Your use of the certificate-based security features of the software
installed on this equipment is subject to the End User License Agreement
provided with the equipment and the Certification Practices Statement,
which you may review at http://www.switchkeyactivation.com/cps. By using
these security features, you are consenting to be bound by the terms of
these documents. If you do not agree to the terms of these documents,
promptly contact the entity from which you obtained this software and do
not use these security features.
```

```
Do you agree to these terms? (yes, y, no, n): [no] y
```

```
This is an interactive session to create a FCS list.
```

```
Current FCS list is empty
```

```
Enter WWN, Domain, or switch name(Leave blank when done): 2
```

```
Switch WWN is 10:00:00:60:69:11:fc:53
```

```
Current FCS list:
```

```
10:00:00:60:69:11:fc:53
```

```
Enter WWN, Domain, or switch name(Leave blank when done): 1
```

```
Switch WWN is 10:00:00:60:69:11:fc:55
```

```
Current FCS list:
```

```
10:00:00:60:69:11:fc:53
```

```
10:00:00:60:69:11:fc:55
```

```
<--continued on next page-->
```

```
Enter WWN, Domain, or switch name(Leave blank when done):
Are you done? (yes, y, no, n): [no] y
Is the FCS correct? (yes, y, no, n): [no] y
New FCS switch root password:
Password must differ by at least 1 position
New FCS switch root password:
Re-enter new password:
New FCS switch factory password:
Re-enter new password:
New FCS switch admin password:
Re-enter new password:
New FCS switch user password:
Re-enter new password:
New Non FCS switch admin password:
Re-enter new password:
Saving passwd...done.
Saving Defined FMPS ...
done
Saving Active FMPS ...
done
Committing configuration...done.
Secure mode is enabled.
Saving passwd...done.
Rebooting...
```

## See Also

[secFabricShow](#)  
[secModeDisable](#)  
[secModeShow](#)

## secModeShow

Displays whether security mode is enabled or disabled.

### Synopsis

secmodeshow

### Availability

all users

### Description

Use this command to display the current security mode of the fabric. The fabric can be in secure mode or nonsecure mode. If the fabric is in secure mode, the following information displays:

- Version stamp - Displays the current version and build date and time of the security database.
- FCS switches - Displays a list of FCS switches.
- Primary - Displays whether the switch is a Primary FCS or Backup FCS.
- WWN - Displays the WWN of the FCS switch.
- DID - Displays the Domain of the FCS switch.
- swName - Displays the alias name of the FCS switch.

---

**Note:** When security mode is enabled, this command can be executed on any switch in fabric.

---

### Operands

none

Example

To display the current security mode of a fabric:

```
primaryfcs:admin> secmodeshow
Secure Mode: ENABLED.
Version Stamp: 9182, Wed Mar 13 16:37:01 2001.
POS  Primary  WWN                               DId    swName.
=====
1      Yes      10:00:00:60:69:00:00:5a  21     SW47.
2      No       12:00:00:60:60:03:23:5b   5     SW12.
```

See Also

- [secFabricShow](#)
- [secModeDisable](#)
- [secModeEnable](#)

## secNonFcsPasswd

Sets the admin password for non-FCS switches.

### Synopsis

secnonfcspasswd

### Availability

admin

### Description

Use this command to change the admin password on all non-FCS switches in the fabric. This command can be issued only from the primary FCS switch in secure mode. The changed passwords are persistent across reboots. All non-FCS switches that join the fabric in the future inherit this new password.

The password must be between 8 and 40 characters long and can consist of any combination of alphanumeric characters.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

Make sure no users are logged in to the network when this command is executed, otherwise, users on non-FCS switches sessions terminate.

---

### Operands

none

### Example

To set the admin password for all non-FCS switches in the fabric:

```
primaryfcs:admin> secnonfcspasswd
Non FCS switch password:
Re-enter new password:
Committing configuration...done.
```



**See Also**

[passwd](#)  
[secModeDisable](#)  
[secModeEnable](#)  
[secModeShow](#)  
[secTempPasswdSet](#)

## secPolicyAbort

Aborts all changes to the defined database that have not been saved.

### Synopsis

secpolicyabort

### Availability

admin

### Description

Use this command to abort all changes to the defined security database that have not been saved to flash memory.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To abort all changes that have not been saved to flash memory:

```
primaryfcs:admin> secpolicyabort
Unsaved data has been aborted.
primaryfcs:admin> secpolicyabort
No new data to abort.
```

### See Also

[secPolicyActivate](#)

[secPolicyAdd](#)

[secPolicyCreate](#)

[secPolicyDelete](#)

secPolicyDump  
secPolicyRemove  
secPolicySave  
secStatsShow

## secPolicyActivate

Applies defined policy set to all switches in the fabric.

### Synopsis

secpolicyactivate

### Availability

admin

### Description

Use this command to activate the current defined security policy to all switches in the fabric. After activation, the defined policy set becomes the active policy set.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To activate the defined security policy set to all switches in the fabric:

```
primaryfcs:admin> secpolicyactivate
About to overwrite the current Active data.
ARE YOU SURE (yes, y, no, n): [no] y
Committing configuration...done.
Saving Defined FMPS ...
done
Saving Active FMPS ...
done
```

### See Also

[secPolicyAbort](#)

[secPolicyAdd](#)

secPolicyCreate  
secPolicyDelete  
secPolicyDump  
secPolicyRemove  
secPolicySave  
secStatsShow

## secPolicyAdd

Adds members to an existing policy.

### Synopsis

```
secpolicyadd "name", "member;member"
```

### Availability

admin

### Description

Use this command to add members to an existing access policy. The new members must not already be members within the policy or the command fails.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security is first enabled using the [secModeEnable](#) command, only the FCS\_POLICY exists. Before a policy is created, there is no enforcement for that management method; all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method (the DCC\_POLICY is an exception).

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operands:

name	<p>Specify the name of an existing policy you want to add members to. Valid values for this operand are:</p> <ul style="list-style-type: none"> <li>■ DCC_POLICY_nnn</li> <li>■ FCS_POLICY</li> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> <li>■ MS_POLICY</li> <li>■ SERIAL_POLICY</li> <li>■ FRONTPANEL_POLICY</li> <li>■ SCC_POLICY</li> <li>■ OPTIONS_POLICY</li> </ul>
	<p>The specified policy name must be capitalized.</p> <p>The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.</p>
member	<p>Specify a list of member switches for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the Policy type members can be specified using IP address, WWN, Domain, switch name, or other.</p>
	<p><b>IP Address Member Policy Types</b></p> <p>The following policy types require members be specified by IP address:</p> <ul style="list-style-type: none"> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> </ul> <p>These policy types require member IPs to be specified in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.</p>

### WWN Member Policy Types

The following policy types require members be specified by WWN address:

- FCS\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY

These policy types require members be specified as WWN strings, Domain ID, or switch names. If Domain ID or switch names are used, the switches associated must be present in the fabric or the command fails.

### DCC\_POLICY Members

The DCC\_POLICY\_nnn is a list of devices associated with a specific switch and port combination. An empty DCC\_POLICY does not stop access to the switch. The device is specified with a WWN string. The switch and port combination must be in the following format:

*<switch><port>*

where:

*<switch>* can be specified using WWN, Domain, or switch name.

*<port>* can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1–6) = selects ports 1 through 6.

(\*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1–3, 5] = selects ports 1 through 3 and 5 and all devices attached to those ports.

[\*] = selects all ports on the switch and devices currently attached to those ports.

### OPTIONS\_POLICY members

“NoNodeWWNZoning” is the only option.



## Examples

To add a member to the MS\_POLICY using the device WWN:

```
primaryfcs:admin> secpolicyadd "MS_POLICY", "12:24:45:10:0a:67:00:40"  
Member(s) have been added to MS_POLICY.
```

To add an SNMP manager to WSNMP\_POLICY:

```
primaryfcs:admin> secpolicyadd "WSNMP_POLICY", "192.168.5.21"  
Member(s) have been added to WSNMP_POLICY.
```

## See Also

- [secPolicyAbort](#)
- [secPolicyActivate](#)
- [secPolicyCreate](#)
- [secPolicyDelete](#)
- [secPolicyDump](#)
- [secPolicyRemove](#)
- [secPolicySave](#)
- [secStatsShow](#)

## secPolicyCreate

Creates a new policy.

### Synopsis

```
secpolicycreate name[, "member;member"]
```

### Availability

admin

### Description

Use this command to create a new policy. All policies can be created only once, except for the DCC\_POLICY\_ *nnn*. Each DCC\_POLICY\_ *nnn* must each have a unique name.

Adding members while creating a policy is optional. You can add members to a policy later, using the [secPolicyAdd](#) command.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security mode is first enabled using the [secModeEnable](#) command, only the FCS\_POLICY exists. Before a policy is created, there is no enforcement for that management method; all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If all members are then deleted from the policy, all access is denied for that management access method.

---

**Note:** The FCS\_POLICY can only be created when enabling security mode using the [secModeEnable](#) command.

If a TELNET\_POLICY or SERIAL\_POLICY is created, that ends the current sectelnet or serial session and a warning is issued.

When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operands:

name	<p>Specify the name of a policy you want to create. Valid values for this operand are:</p> <ul style="list-style-type: none"> <li>■ DCC_POLICY_nnn</li> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> <li>■ MS_POLICY</li> <li>■ SERIAL_POLICY</li> <li>■ FRONTPANEL_POLICY</li> <li>■ SCC_POLICY</li> <li>■ OPTIONS_POLICY</li> </ul>
	<p>The specified policy name must be capitalized.</p> <p>The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names. Valid values for DCC_POLICY_nnn are user defined alphanumeric or underscore characters. The maximum length is 30 characters, including the prefix DCC_POLICY_.</p>
member	<p>Specify a list of members for the security policy. The members must be enclosed in quotation marks and separated by semicolons. Depending on the Policy type members can be specified using IP address, WWN, Domain, or switch name.</p> <p><b>IP Address Member Policy Types</b></p> <p>The following policy types require members be specified by IP address:</p> <ul style="list-style-type: none"> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> </ul> <p>These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.</p>

### WWN Member Policy Types

The following policy types require members be specified by WWN address:

- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY

These policy types require member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

### DCC\_POLICY Members

The DCC\_Policy\_nnn is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be in the following format:

*<switch><port>*

where:

*<switch>* can be specified using WWN, Domain, or switch name.

*<port>* can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1–6) = selects ports 1 through 6.

(\*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1–3, 5] = selects ports 1 through 3 and 5 and all devices attached to those ports.

[\*] = selects all ports on the switch and devices currently attached to those ports.

### OPTIONS\_POLICY members

“NoNodeWWNZoning” is the only option.

### SCC\_POLICY Members

This policy type requires member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

To add all switches in the current fabric as members of the SCC\_POLICY enter an asterisk "\*" enclosed in quotation marks as the member value. This feature cannot be used by the other security telnet commands.

### Examples

To create a new, single MS\_POLICY that enables access through a device that has WWN of 12:24:45:10:0a:67:00:40.:

```
primaryfcs:admin> secpolicycreate "MS_POLICY", "12:24:45:10:0a:67:00:40"
MS_POLICY has been created.
```

To create a new front panel policy that only enables domains 3 and 4 to use the front panel:

```
primaryfcs:admin> secpolicycreate "FRONTPANEL_POLICY", "3; 4"
FRONTPANEL_POLICY has been created.
```

To create a device policy to allow two devices to attach to domain 3 ports 1 and 3 (the WWN of first device is 11:22:33:44:55:66:77:aa and the WWN of second device is 11:22:33:44:55:66:77:bb):

```
primaryfcs:admin> secpolicycreate "DCC_POLICY_aB_7",
"11:22:33:44:55:66:77:aa;11:22:33:44:55:66:77:bb;3[1,3]"
DCC_POLICY_abc has been created.
```

To create a telnet policy to allow anyone on the 192.168.5.0/24 network to access the fabric through sectelnet:

```
primaryfcs:admin> secpolicycreate "TELNET_POLICY", "192.168.5.0"
TELNET_POLICY has been created.
```

### See Also

[secPolicyAbort](#)  
[secPolicyActivate](#)

`secPolicyAdd`  
`secPolicyDelete`  
`secPolicyDump`  
`secPolicyRemove`  
`secPolicySave`  
`secStatsShow`

## secPolicyDelete

Deletes an existing policy.

### Synopsis

```
secpolicydelete "name"
```

### Availability

admin

### Description

Use this command to delete an existing defined policy. The FCS\_POLICY cannot be deleted through this command, since this policy must exist to maintain security mode.

Each policy corresponds to a management method. The list of members of a policy acts as an access control list for that management method. When security mode is first enabled using the [secModeEnable](#) command, only the FCS\_POLICY exists. Before a policy is created, there is no enforcement for that management method; all access is granted. After a policy has been created and a member has been added to the policy, that policy becomes closed to all access except from included members. If the policy is deleted all access is granted.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operand:

name	<p>Specify the name of a security policy to delete. The policy name must be enclosed in quotation marks. Valid security policy names are:</p> <ul style="list-style-type: none"><li>■ DCC_POLICY_nnn</li><li>■ TELNET_POLICY</li><li>■ HTTP_POLICY</li><li>■ API_POLICY</li><li>■ RSNMP_POLICY</li><li>■ WSNMP_POLICY</li><li>■ MS_POLICY</li><li>■ SERIAL_POLICY</li><li>■ FRONTPANEL_POLICY</li><li>■ SCC_POLICY</li><li>■ OPTIONS_POLICY</li></ul> <p>The specified policy name must be capitalized.</p> <p>The DCC_POLICY_nnn name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.</p> <p>This operand is required.</p>
------	--

---

**Note:** After security policy is deleted, fabric-wide switch access through that method is unrestricted.

---

## Example

To delete an existing security policy:

```
primaryfcs:admin> secpolicydelete "MS_POLICY"
About to delete policy MS_POLICY.
Are you sure (yes, y, no, n):[no] y
MS_POLICY has been deleted.
```



**See Also**

[secPolicyAbort](#)  
[secPolicyActivate](#)  
[secPolicyAdd](#)  
[secPolicyCreate](#)  
[secPolicyDump](#)  
[secPolicyRemove](#)  
[secPolicySave](#)  
[secStatsShow](#)

## secPolicyDump

Displays all members of existing policies.

### Synopsis

```
secpolicydump [listtype[, name]]
```

### Availability

all users

### Description

Use this command to display, without page breaks, the members of an existing policy in the active and defined (saved) databases.

---

**Note:** When security mode is enabled, this command can be executed on any FCS switch in fabric.

---

## Operands

This command has the following operands:

`listtype` Specify which database to display. The name for active database is "Active"; the name for saved, defined database is "Defined." If not specified, all databases are displayed. This operand is optional. An asterisk (\*) can be used to specify both Active and Defined.

`name` Specify the name of a security policy you would like to view. Valid values for this operand are:

- DCC\_POLICY\_nnn
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY\_nnn name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names.

This operand is optional.

## Examples

To view all security policy information from all databases (active, updating, and defined) without page breaks:

```
primaryfcs:admin> secpolicydump
```

---

```

                                DEFINED POLICY SET

FCS_POLICY
Pos      Primary WWN                                DIid swName
-----
  1    Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.155.52.0

```

---

```

                                ACTIVE POLICY SET

FCS_POLICY
Pos      Primary WWN                                DIid swName
-----
  1    Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.155.52.0
192.155.53.1
192.155.54.2
192.155.55.3

```

---

To view all security policy information for the TELNET\_POLICY, without page breaks:

```
primaryfcs:admin> secpolicydump "*", "TELNET_POLICY"
```

---

DEFINED POLICY SET

TELNET\_POLICY  
  IpAddr

---

192.155.52.13  
192.155.52.11

---

ACTIVE POLICY SET

TELNET\_POLICY  
  IpAddr

---

192.155.52.0

---

## See Also

[secPolicyAbort](#)  
[secPolicyActivate](#)  
[secPolicyAdd](#)  
[secPolicyCreate](#)  
[secPolicyDelete](#)  
[secPolicyRemove](#)  
[secPolicySave](#)  
[secStatsShow](#)

## secPolicyFcsMove

Moves a member in the FCS policy.

### Synopsis

```
secpolicyfcsmove [From, To]
```

### Availability

admin

### Description

Use this command to move an FCS member from one position to another in the FCS list. Only one FCS can be moved at a time. The first FCS switch in the list that is also present in the fabric is the primary FCS.

If no parameters are specified, the command becomes interactive, prompting you to supply valid values for the operands.

---

**Note:** This command must be issued from the primary FCS switch. If a backup FCS is moved to the first position, it becomes the primary FCS after activation.

---

### Operands

This command has the following operands:

From	Specify the position number of the FCS switch you want to move.
To	Specify the position that you want to move the FCS switch to.

If no operand is specified, the command becomes interactive and you are prompted for values.

Example

To move backup FCS switch at position 2 to position 3 in the FCS list:

```
switch5:admin> secpolicyfcsmove
Pos   Primary WWN                               DId swName.
=====
  1   Yes      10:00:00:60:69:10:02:18         1 switch5.
  2   No       10:00:00:60:69:00:00:5a         2 switch60.
  3   No       10:00:00:60:69:00:00:13         3 switch73.

Please enter position you'd like to move from : (1..3) [1] 2
Please enter position you'd like to move to   : (1..3) [1] 3
```

DEFINED POLICY SET				
FCS_POLICY				
Pos	Primary	WWN	DId	swName
1	Yes	10:00:00:60:69:10:02:18	1	switch5.
2	No	10:00:00:60:69:00:00:13	3	switch73.
3	No	10:00:00:60:69:00:00:5a	2	switch60.

See Also

- [secFabricShow](#)
- [secPolicyAbort](#)
- [secPolicyActivate](#)
- [secPolicyAdd](#)
- [secPolicyCreate](#)
- [secPolicyDelete](#)
- [secPolicyDump](#)
- [secPolicyRemove](#)
- [secPolicySave](#)
- [secStatsShow](#)

## secPolicyRemove

Removes members from an existing policy.

### Synopsis

```
secpolicyremove "name", "member;member"
```

### Availability

admin

### Description

Use this command to remove members from an existing security policy. If a policy is empty after removing all members, all accesses to the policy are disallowed (the DCC\_POLICY and OPTIONS\_POLICY are exceptions). You cannot remove all members from FCS\_POLICY, and you cannot remove the FCS members from SCC\_POLICY.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---



## Operands

This command has the following operands:

name	<p>Specify the name of an existing policy you want to remove members from. Valid values for this operand are:</p> <ul style="list-style-type: none"> <li>■ DCC_POLICY_nnn</li> <li>■ FCS_POLICY</li> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> <li>■ MS_POLICY</li> <li>■ SERIAL_POLICY</li> <li>■ FRONTPANEL_POLICY</li> <li>■ SCC_POLICY</li> <li>■ OPTIONS_POLICY</li> </ul> <p>The specified policy name must be capitalized.</p> <p>The DCC_POLICY policy name has the common prefix DCC_POLICY_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.</p> <p>This operand is required.</p>
member	<p>Specify a member or list of members to delete from the policy. The members must be enclosed in quotation marks and separated by semicolons. This operand is required. Depending on the policy type, members can be specified using IP address, WWN, Domain, or switch name.</p> <p><b>IP Address Member Policy Types</b></p> <p>The following policy types require members be specified by IP address:</p> <ul style="list-style-type: none"> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> </ul> <p>These policy types require member IDs in dot notation (for example, 124.23.56.122). If 0 is specified in one of the octets, it means any number can be matched.</p>

### WWN Member Policy Types

The following policy types require members be specified by WWN address:

- FCS\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY

These policy types require member IDs be specified as WWN strings, Domains, or switch names. If Domain or switch names are used, the switches associated must be present in the fabric or the command fails.

### DCC\_POLICY Members

The DCC\_Policy\_nnn is a list of devices associated with a specific switch and port combination. The device is specified with a WWN string. The switch and port combination must be in the following format:

`<switch><port>`

where:

`<switch>` can be specified using WWN, Domain, or switch name.

`<port>` can be specified by port number separated by commas, and enclosed in either brackets or parenthesis. For example, (2, 4, 6). Ports enclosed in brackets will include the devices currently attached to those ports. The following examples show several ways to specify the port values:

(1–6) = selects ports 1 through 6.

(\*) = selects all ports on the switch.

[3, 9] = selects ports 3 and 9 and all devices attached to those ports.

[1–3, 5] = selects ports 1 through 3 and 5 and all devices attached to those ports.

[\*] = selects all ports on the switch and devices currently attached to those ports.

### OPTIONS\_POLICY members

“NoNodeWWNZoning” is the only option.

## Example

To remove a member that has a WWN of 12:24:45:10:0a:67:00:40 from MS policy:

```
primaryfcs:admin> secpolicyremove "MS_POLICY", "12:24:45:10:0a:67:00:40"  
Member(s) have been removed from MS_POLICY. .
```

## See Also

- [secPolicyAbort](#)
- [secPolicyActivate](#)
- [secPolicyAdd](#)
- [secPolicyCreate](#)
- [secPolicyDelete](#)
- [secPolicyDump](#)
- [secPolicySave](#)
- [secStatsShow](#)

## secPolicySave

Saves a defined security policy to flash memory on all switches in the fabric.

### Synopsis

secpolicysave

### Availability

admin

### Description

Use this command to save a defined security policy to flash memory of all switches in the fabric.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

none

### Example

To save new policy set in all switches in the fabric:

```
primaryfcs:admin> secpolicysave
Committing configuration...done.
Saving Define FMPS ...
done
```

### See Also

[secPolicyAbort](#)  
[secPolicyActivate](#)  
[secPolicyAdd](#)  
[secPolicyCreate](#)

secPolicyDelete  
secPolicyDump  
secPolicyRemove  
secStatsShow

## secPolicyShow

Displays an existing security policy.

### Synopsis

```
secpolicyshow [listtype[, name]]
```

### Availability

all users

### Description

Use this command to display the members of an existing policy in the active or defined security policy database. Users can specify which database to display. If a database is not specified, all databases are displayed.

Users can specify to view a security policy by name. If no name is specified, all policies are displayed.

This command displays the policy database one page at a time. Use [secPolicyDump](#) to display the policy database without page breaks.

---

**Note:** When security mode is enabled, this command can be executed on any FCS switch in fabric.

---

## Operands

This command has the following operands:

`listtype` Specify which database to display. The name for active database is "Active"; the name for saved, defined database is "Defined." This operand must be enclosed in quotation marks. If not specified, all databases are displayed. This operand is optional. Use an asterisk (\*) to specify both Active and Defined.

`name` Specify the name of a security policy you would like to view. Valid values for this operand are:

- DCC\_POLICY\_nnn
- FCS\_POLICY
- TELNET\_POLICY
- HTTP\_POLICY
- API\_POLICY
- RSNMP\_POLICY
- WSNMP\_POLICY
- MS\_POLICY
- SERIAL\_POLICY
- FRONTPANEL\_POLICY
- SCC\_POLICY
- OPTIONS\_POLICY

The specified policy name must be capitalized.

The DCC\_POLICY\_nnn name has the common prefix DCC\_POLICY\_ followed by a string of user defined characters. These characters do not have to be capitalized like regular policy names, but are case sensitive.

This operand is optional.

## Example

To display all security policies from all databases:

```
primaryfcs:admin> secpolicyshow "active"

ACTIVE POLICY SET

FCS_POLICY
Pos      Primary WWN                                DIId swName
-----
1      Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.155.52.0

primaryfcs:admin>
primaryfcs:admin> secPolicyShow "defined"

DEFINED POLICY SET

FCS_POLICY
Pos      Primary WWN                                DIId swName
-----
1      Yes      10:00:00:60:69:30:15:5c    1 primaryfcs

HTTP_POLICY
IpAddr
-----
192.155.52.0
192.155.53.1
192.155.54.2
192.155.55.3
192.155.56.4
```

## See Also

[secPolicyAbort](#)  
[secPolicyActivate](#)  
[secPolicyAdd](#)  
[secPolicyCreate](#)  
[secPolicyDelete](#)  
[secPolicyDump](#)



`secPolicyRemove`

`secStatsShow`

**secStatsReset**

Resets one or all security statistics to 0.

**Synopsis**

```
secstatsreset [name][,list]
```

**Availability**

admin

**Description**

Use this command to reset one or all security statistics to 0. This command can be issued to any switch. If issued on the primary FCS switch, this command can reset security statistics for any or all switches in the fabric.

## Operands

This command has the following operands:

name	<p>Specify the name of a security statistic you would like to reset. If executed on the Primary FCS, specify an asterisk (*) to represent all security policies. Valid values for this operand are:</p> <ul style="list-style-type: none"> <li>■ TELNET_POLICY</li> <li>■ HTTP_POLICY</li> <li>■ API_POLICY</li> <li>■ RSNMP_POLICY</li> <li>■ WSNMP_POLICY</li> <li>■ MS_POLICY</li> <li>■ SERIAL_POLICY</li> <li>■ FRONTPANEL_POLICY</li> <li>■ SCC_POLICY</li> <li>■ DCC_POLICY</li> <li>■ LOGIN</li> <li>■ INVALID_TS</li> <li>■ INVALID_SIGN</li> <li>■ INVALID_CERT</li> <li>■ SLAP_FAIL</li> <li>■ SLAP_BAD_PKT</li> <li>■ TS_OUT_SYNC</li> <li>■ NO_FCS</li> <li>■ INCOMP_DB</li> <li>■ ILLEGAL_CMD</li> </ul> <p>The specified policy name must be all capitalized.</p> <p>To access DCC policies, enter DCC_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC_POLICY violations are grouped together.</p> <p>This operand is optional and the default is all statistics. If the <code>list</code> operand is specified, then this operand is required.</p>
list	<p>Specify a list of domains to reset the security statistics on. Specify an asterisk (*) to represent all switches in the fabric or, specify a list of domains separated by semicolons. This operand is optional and the default value is the local switch.</p>

## Examples

To reset all statistics on the local switch:

```
primaryfcs:admin> secstatsreset  
About to reset all security counters.  
Are you sure (yes, y, no, n):[no] y  
Security statistics reset to zero.
```

To reset DCC\_POLICY statistics on domains 1 and 69:

```
primaryfcs:admin> secstatsreset "DCC_POLICY", "1;69"  
Reset DCC_POLICY statistic.
```

## See Also

[secFabricShow](#)

[secStatsShow](#)

## secStatsShow

Displays one or all security statistics.

### Synopsis

```
secstatsshow [name][,list]
```

### Availability

admin

### Description

Use this command to display one or all security statistics. This command can be issued to any switch. If issued on the primary FCS switch, this command can retrieve and display the security statistics for any or all switches in the fabric.

---

**Note:** When security mode is enabled, this command can be issued from any switch in the fabric.

---

## Operands

This command has the following operands:

name	<p>Specify the name of a security statistic you would like to view. If executed on the Primary FCS, specify an asterisk (*) to represent all security policies. Valid values for this operand are:</p> <ul style="list-style-type: none"><li>■ TELNET_POLICY</li><li>■ HTTP_POLICY</li><li>■ API_POLICY</li><li>■ RSNMP_POLICY</li><li>■ WSNMP_POLICY</li><li>■ MS_POLICY</li><li>■ SERIAL_POLICY</li><li>■ FRONTPANEL_POLICY</li><li>■ SCC_POLICY</li><li>■ DCC_POLICY</li><li>■ LOGIN</li><li>■ INVALID_TS</li><li>■ INVALID_SIGN</li><li>■ INVALID_CERT</li><li>■ SLAP_FAIL</li><li>■ SLAP_BAD_PKT</li><li>■ TS_OUT_SYNC</li><li>■ NO_FCS</li><li>■ INCOMP_DB</li><li>■ ILLEGAL_CMD</li></ul> <p>The specified policy name must be all capitalized.</p> <p>To access DCC policies, enter DCC_POLICY. Violations are not tracked for individual DCC policies. The statistics for all DCC_POLICY violations are grouped together.</p> <p>This operand is optional and the default is all statistics. If the <code>list</code> operand is specified, then this operand is required.</p>
list	<p>Specify a list of domains to display the security statistics on. Specify an asterisk (*) to represent all switches in the fabric or, specify a list of domains separated by semicolons. This operand is optional and the default value is the local switch.</p>

## Examples

To display the MS\_POLICY statistics on the local switch:

```
primaryfcs:admin> secstatsshow "MS_POLICY"
Name Value
=====
MS 20
```

To display statistic information for TELNET\_POLICY for all switches in the fabric:

```
primaryfcs:admin> secstatsshow "TELNET_POLICY", "*"

Fabric Statistics:

Domain 1:
Name          Value
=====
TELNET_POLICY    0

Domain 69:
Name          Value
=====
TELNET_POLICY    0

Domain 70:
Name          Value
=====
TELNET_POLICY    0
```

## See Also

[secFabricShow](#)

[secStatsReset](#)

## secTempPasswdReset

Resets a temporary password on a remote switch.

### Synopsis

```
sectemppasswdreset [domain[, login_name]]
```

### Availability

admin

### Description

Use this command to remove temporary passwords that were set up using [secTempPasswdSet](#) command.

If a login name is not supplied, all passwords on the switch identified by the specified domain are refreshed. If the domain is also not supplied, all temporary passwords for all login levels are removed from every switch in the fabric.

Each switch has four accounts: root, factory, admin, and user. Root and factory accounts are disabled for non-FCS switches. If they are temporarily activated by [secTempPasswdSet](#), those accounts are disabled by [secTempPasswdReset](#) or rebooting the switch.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operands:

domain	Specify the Domain of the switch from which the temporary passwords are to be removed. This operand is optional.
login_name	Specify the name of the login account from which the temporary password are removed. This operand is optional.



## Example

To remove temporary passwords:

```
primaryfcs:admin> sectemppasswdreset 2, "root"
Account root has been successfully disabled on domain 2

primaryfcs:admin> sectemppasswdreset 2
Restoring password of every account on domain 2
Temporary password of each account on domain 2 has been successfully reset
(if switch is non fcs switch it will further display).
Root and factory accounts on domain 2 have been disabled.

primaryfcs:admin> sectemppasswdreset
All temporary passwords or account settings have been restored to
fabric-wide secure settings.
Passwords of permanent accounts have been reset to fabric-wide
values. Root and factory accounts on each Non FCS switch have
been disabled.
```

## See Also

[secModeEnable](#)

[secModeShow](#)

[secNonFcsPasswd](#)

## secTempPasswdSet

Sets a temporary password on a remote switch.

### Synopsis

```
sectemppasswdset domain, login_name
```

### Availability

admin

### Description

Use this command to set a unique temporary password for a given account on a specific switch in the fabric. Use the [secTempPasswdReset](#) command to remove the temporary password or reboot the switch.

You can change any password on any switch. To change the password of an account that has higher level than that of the current user logged in to the primary FCS switch, you must enter the password of the same level account on the primary FCS switch.

The password setup on the target is not persistent and will be reset to the secure fabric-wide setting when this target switch is rebooted or when [secTempPasswdReset](#) is run on primary FCS switch.

Each switch has four accounts: root, factory, admin, and user. Root and factory accounts are disabled for non-FCS switches. This command can enable the root or factory account on a non-FCS switch when you specify a password for those accounts.

The password should be between 8 and 40 characters.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

This command has the following operands:

domain	Specify the Domain of a switch where you want to change the password. This operand is required.
login_name	Specify the login name where you want to change the password. This operand is required.

## Example

To set the password on a remote switch with a Domain of 2:

```
primaryfcs:admin> sectemppasswdset 2, "root"
Please provide password of root on primary FCS switch
in order to change this password: *****
Set remote switch root password: *****
Re-enter new password: *****
Account root has been successfully enabled on domain 2
```

## See Also

[passwd](#)  
[secModeDisable](#)  
[secModeEnable](#)  
[secModeShow](#)  
[secNonFcsPasswd](#)  
[secTempPasswdReset](#)

## secTransAbort

Aborts current security transaction.

### Synopsis

sectransabort

### Availability

admin

### Description

Use this command to abort the current transaction. This command is used to recover from management application problems. This command will abort all current changes that have not been committed or activated.

---

**Note:** When security mode is enabled, this command can be executed from any switch in the fabric.

---

### Operands

none

### Example

To abort the current security transaction:

```
primaryfcs:admin> sectransabort  
Transaction has been aborted.
```

### See Also

[secPolicyAbort](#)  
[secPolicyActivate](#)  
[secPolicyAdd](#)  
[secPolicyCreate](#)

secPolicyDelete  
secPolicyDump  
secPolicyRemove  
secPolicySave  
secStatsShow

## secVersionReset

Resets the version stamp to 0.

### Synopsis

```
secversionreset
```

### Availability

admin

### Description

Use this command to reset the version stamp of all switches in a fabric to 0, so that it can be joined to another secure fabric.

When merging two or more secure fabrics:

1. Determine which secure fabric will become the FCS\_POLICY controller fabric: the dominant fabric to which all other secure fabrics will be merged.
2. Use the [secPolicyAdd](#), [secPolicyRemove](#), and [secPolicyActivate](#) commands to modify the FCS\_POLICY of the merging fabrics to match the FCS\_POLICY of the controller fabric. All secure fabrics to be merged must have identical FCS\_POLICY lists. The FCS policies of merged fabrics must match exactly; they must contain the same FCS members and in the same order, or the merge will fail.
3. Reset the version stamp using the [secVersionReset](#) command on each secure fabric to be merged into the controller fabric. The controller fabric does not require a version reset.
4. Cascade the fabrics together. When the secure fabrics merge, the primary FCS switch in the controller fabric propagates its security policies across the newly formed fabric.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch, a non-FCS when there is no FCS switch in the fabric, or from a disabled switch.

---

## Operands

none

## Example

To reset the version stamp to 0:

```
primaryfcs:admin> secversionreset
About to reset version stamp to 0.
Are you sure (yes, y, no, n):[no] y
Committing configuration... done.
Security Policy Version Stamp has been set to 0.
```

## See Also

[secFabricShow](#)  
[secModeDisable](#)  
[secModeEnable](#)  
[secModeShow](#)  
[secTransAbort](#)

## sensorShow

Displays sensor readings for the Core Switch 2/64 and SAN Director 2/128.

### Synopsis

```
sensorShow
```

### Availability

all users

### Description

Use this command to display the current temperature, fan, and power supply status and readings from sensors located on the switch. The actual location of the sensors varies, depending on the switch type.

In the Core Switch 2/64, the information returned with [sensorShow](#) is specific to the logical switch you are logged in to:

- If you are logged in to logical switch 0, sensors 1 through 4 are for switch blade slots 1 through 4, respectively. Sensors 5 and 6 are for the two CPs in slots 5 and 6, respectively.
- If you are logged in to logical switch 1, sensors 1 and 2 are for the two CPs in slots 5 and 6, respectively. Sensors 3 through 6 are for switch blade slots 7 through 10, respectively.
- Regardless of logical switch, sensors 7 through 9 are for the three chassis fans, left to right, and sensors 10 through 13 are for the four chassis power supplies, bottom to top.

### Operands

none



## Example

To view the sensor values in a Core Switch 2/64 and SAN Director 2/128:

```
switch:admin> sensorshow
sensor 1: (Temperature) is Ok, value is 39 C
sensor 2: (Temperature) is Absent
sensor 3: (Temperature) is Absent
sensor 4: (Temperature) is Absent
sensor 5: (Temperature) is Ok, value is 26 C
sensor 6: (Temperature) is Ok, value is 27 C
sensor 7: (Fan          ) is Ok, speed is 2537 RPM
sensor 8: (Fan          ) is Ok, speed is 2537 RPM
sensor 9: (Fan          ) is Ok, speed is 2556 RPM
sensor 10: (Power Supply ) is Ok
sensor 11: (Power Supply ) is Absent
sensor 12: (Power Supply ) is Ok
sensor 13: (Power Supply ) is Absent
```

## See Also

[fanShow](#)

[tempShow](#)

## setDbg

Sets debug level of the specified module.

### Synopsis

```
setdbg module_name level
```

### Availability

admin

### Description

Use this command to set the debug level of a specified module.

### Operands

This command has the following operands:

<code>module_name</code>	Specify the name of the module where you want to view the debug and verbosity levels. Module names are case sensitive. This operand is optional.
<code>level</code>	Specify the debug level for the specified module. This operand is required.

### Example

To set debug level of module named NS to value 3:

```
switch:admin> setdbg NS 3
```

### See Also

[dbgshow](#)

## setErrLvl

Sets the error level of the specified module.

### Synopsis

```
seterrlvl module_name level
```

### Availability

admin

### Description

Use this command to set the error level of a specified module.

### Operands

This command has the following operands:

<code>module_name</code>	Specify the name of the module where the error level is to be set. Module names are case sensitive. This operand is optional.
<code>level</code>	Specify the error level for the specified module. This operand is required.

### Example

To set error level of module named NS to value 3:

```
switch:admin> seterrlvl NS 3
```

### See Also

[dbgshow](#)

## setEsdMode

Enables or disables ESD mode.

### Synopsis

```
setesdmode [mode / -show]
```

### Availability

admin

### Description

Use this command to enable or disable ESD mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of [setEsdMode](#).

The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

ESD mode modifies the behavior of the diagnostic test methods and post scripts. The exact behavior varies but most commonly consists of disabling the ports defined with diagsetports when [spinSilk](#) or other functional tests are run for ESD or EMI testing purposes.

### Operands

This command has the following operands:

<code>mode</code>	Specify 1 to enable ESD mode, 0 to disable ESD mode. This operand is optional.
<code>-show</code>	Specify this operand to display the current mode setting. This operand is required.

If no operand is specified, the current value displays.

## Example

To set ESD mode:

```
switch:admin> setesdmode  
Esd Mode is 0 (Disabled).  
switch:admin> setesdmode 1  
Config update Succeeded  
Esd Mode is now 1 (Enabled).
```

## See Also

[spinSilk](#)

## setGbicMode

Enables or disables media mode.

### Synopsis

```
setmediamode [mode | -show]
setgbicmode [mode | -show]
setsfpmode [mode | -show]
```

### Availability

admin

### Description

Use these commands to enable media mode (GBIC or SFP) if the mode value is nonzero and disable the media mode if the mode value is 0. The mode is saved in flash memory and stays in that mode until the next execution of [setMediaMode](#), [setSfpMode](#), or [setGbicMode](#). The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Media mode modifies the behavior of the diagnostic test methods so that ports without media installed are not tested. Normally, tests such as [crossPortTest](#) or [spinSilk](#) fail if any port is not operating properly, but with media mode enabled, the functional tests are skipped on ports that do not contain media.

### Operands

This command has the following operands:

mode	Specify 1 to enable media mode or 0 to disable media mode. If no mode is specified the current value is displayed. Any other value will enable media mode.
-show	Specify the <code>-show</code> operand to display the current setting. This operand is optional.

## Example

To enable or disable media mode:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setsfpemode 0
SFP mode is now 0 (disabled).
switch:admin> setmediamode -show
Media mode is now 0 (disabled).
```

## See Also

[crossPortTest](#)

[itemList](#)

[spinSilk](#)

## setMediaMode

Enables or disables media mode.

### Synopsis

```
setmediamode [mode | -show]
setgbicmode [mode | -show]
setsfpmode [mode | -show]
```

### Availability

admin

### Description

Use these commands to enable media mode (GBIC or SFP) if the mode value is nonzero and disable the media mode if the mode value is 0. The mode is saved in flash memory and stays in that mode until the next execution of [setMediaMode](#), [setSfpMode](#), or [setGbicMode](#). The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Media mode modifies the behavior of the diagnostic test methods so that ports without media installed are not tested. Normally, tests such as [crossPortTest](#) or [spinSilk](#) fail if any port is not operating properly, but with media mode enabled, the functional tests are skipped on ports that do not contain media.

### Operands

This command has the following operands:

mode	Specify 1 to enable media mode or 0 to disable media mode. If no mode is specified the current value is displayed. Any other value will enable media mode.
-show	Specify the <code>-show</code> operand to display the current setting. This operand is optional.



## Example

To enable or disable media mode:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setsfpemode 0
SFP mode is now 0 (disabled).
switch:admin> setmediamode -show
Media mode is now 0 (disabled).
```

## See Also

[crossPortTest](#)

[itemList](#)

[spinSilk](#)

## setSfpMode

Enables or disables media mode.

### Synopsis

```
setmediamode [mode | -show]
setgbicmode [mode | -show]
setsfpmode [mode | -show]
```

### Availability

admin

### Description

Use these commands to enable media mode (GBIC or SFP) if the mode value is nonzero and disable the media mode if the mode value is 0. The mode is saved in flash memory and stays in that mode until the next execution of [setMediaMode](#), [setSfpMode](#), or [setGbicMode](#). The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

Media mode modifies the behavior of the diagnostic test methods so that ports without media installed are not tested. Normally, tests such as [crossPortTest](#) or [spinSilk](#) fail if any port is not operating properly, but with media mode enabled, the functional tests are skipped on ports that do not contain media.

### Operands

This command has the following operands:

mode	Specify 1 to enable media mode or 0 to disable media mode. If no mode is specified the current value is displayed. Any other value will enable media mode.
-show	Specify the -show operand to display the current setting. This operand is optional.

## Example

To enable or disable media mode:

```
switch:admin> setgbicmode 1
GBIC mode is now 1 (Enabled).
switch:admin> setsfpemode 0
SFP mode is now 0 (disabled).
switch:admin> setmediamode -show
Media mode is now 0 (disabled).
```

## See Also

[crossPortTest](#)

[itemList](#)

[spinSilk](#)

## setSplbMode

Enables or disables two-port loopback.

### Synopsis

```
setSplbMode [mode | -show]
```

### Availability

admin

### Description

Use this command to enable or disable SPLB mode. The mode is saved in nonvolatile memory and stays in that mode until the next execution of [setSfpMode](#). The mode becomes active as soon as this command is executed. It does not require a reboot to take effect.

The SPLB mode, when enabled, forces the [spinSilk](#) command to disable two-port loopback for M->M connected ports. This might be useful to isolate internal switch problems from SFP problems since the internal paths are used much less with SPLB mode enabled.

Disabling SPLB mode, forces the [spinSilk](#) command to circulate frames between pairs of M->M connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
```

where:

>>> is a cable or internal loopback

-> is a routing table entry

The connections between pairs of M->M ports will be chosen to exercise the connections between as many chips (or bloom quadrants) as possible, subject to the setting of `allow_intra_chip` and the availability of pairs of M->M ports.

Any ports that are cross-cabled will be routed to each other in the normal manner, regardless of the setting of SPLB mode:

```
P1 TX >>> P2 RX -> P1 TX
```

```
P2 TX >>> P1 RX -> P2 TX
```

## Operands

This command has the following operands:

mode	Specify 1 to enable SPLB mode or 0 to disable SPLB mode. If no mode is specified the current value is displayed. This operand is optional.
-show	Specify the <code>-show</code> operand to display the current setting. This operand is optional.

## Example

To enable or disable a two-port loopback:

```
switch:admin> setsplbmode 1
Config update Succeed.
SPLB mode is now 1 (Enabled).
switch:admin> setSplbMode 0
Config update Succeed.
SPLB mode is now 0 (disabled).
```

## See Also

[setSfpMode](#)

[spinSilk](#)

## setVerbose

Specifies module verbose level.

### Synopsis

`setverbose module_name, level`

### Availability

admin

### Description

Use this command to set the verbose level of the specified module.

### Operands

This command has the following operands:

<code>module_name</code>	Specify the name of the module for which verbose level is to be set.
<code>level</code>	Specify the verbose level.

### Example

To set the verbose level of module named NS to value 3:

```
switch:admin> setverbose NS 3
```

### See Also

[dbgshow](#)

## sfpShow

Displays serial ID SFP information.

### Synopsis

```
sfpShow [slotnumber/] [portnumber] [-all]
```

### Availability

all users

### Description

Use this command to display information about serial identification SFPs (also known as module definition "4" SFPs). These SFPs provide extended information that describes the SFPs capabilities, interfaces, manufacturer, and other information.

---

**Note:** SFPs are polled by a background process. The [sfpShow](#) command retrieves the latest information from cache. The cache values for each SFP are updated when the SFP is hot plugged, when it is removed, or when the Fabric OS polls the SFPs. In the Core Switch 2/64 and SAN Director 2/128, if there is a lot of activity on the switch, poll updates might take several minutes.

---

Use this command with no operand to display a summary of all SFPs in the switch. The summary displays the SFP type (see [switchShow](#) for an explanation of the two-letter codes) and, for serial ID SFP, the vendor name and SFP serial number.

Use this command with the `slot` and `portnumber` operands to display detailed information about the serial ID SFP in that port. Use the `-all` operand to display detailed information for all available SFPs.

For Finisar "smart" SFPs, five additional fields display:

- Module temperature
- Voltage
- Received optical power
- Transmitted optical power (longwave only)

- Laser diode drive current.

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.</p>
-all	<p>Displays detailed data for all available SFPs on the switch.</p>



## Examples

To display SFP summary information followed by detailed information for an SFP:

```
switch:admin> sfpshow
Area 0: id (sw) Vendor: AGILENT Serial No: A00149567
Area 1: id (sw) Vendor: AGILENT Serial No: A00108650
Area 2: id (sw) Vendor: AGILENT Serial No: A00149568
Area 3: id (sw) Vendor: AGILENT Serial No: A00108567
Area 4: id (sw) Vendor: AGILENT Serial No: A00152395
Area 5: id (sw) Vendor: AGILENT Serial No: A00149623
Area 6: id (sw) Vendor: AGILENT Serial No: A00152423
Area 7: id (sw) Vendor: AGILENT Serial No: A00108932
Area 8: id (sw) Vendor: AGILENT Serial No: A00111165
Area 9: id (sw) Vendor: AGILENT Serial No: A00079899
Area 10: id (sw) Vendor: AGILENT Serial No: A00079319
Area 11: id (sw) Vendor: AGILENT Serial No: A00079917
Area 12: id (sw) Vendor: AGILENT Serial No: A00079274
Area 13: id (sw) Vendor: AGILENT Serial No: A00079348
Area 14: id (sw) Vendor: AGILENT Serial No: A00079843
Area 15: id (sw) Vendor: AGILENT Serial No: A00150114
Area 16: id (sw) Vendor: AGILENT Serial No: A00079337
Area 17: id (sw) Vendor: AGILENT Serial No: A00148599
Area 18: id (sw) Vendor: AGILENT Serial No: A00079856
Area 19: id (sw) Vendor: AGILENT Serial No: A00079937
Area 20: id (sw) Vendor: AGILENT Serial No: A00079832
Area 21: id (sw) Vendor: AGILENT Serial No: A00079835
Area 22: id (sw) Vendor: AGILENT Serial No: A00079332
Area 23: id (sw) Vendor: AGILENT Serial No: A00079852
Area 24: id (sw) Vendor: AGILENT Serial No: A00148593
Area 25: id (sw) Vendor: AGILENT Serial No: A00084645
Area 26: id (sw) Vendor: AGILENT Serial No: A00079381
Area 27: id (sw) Vendor: AGILENT Serial No: A00084644
Area 28: id (sw) Vendor: AGILENT Serial No: A00084654
Area 29: id (sw) Vendor: AGILENT Serial No: A00079318
Area 30: id (sw) Vendor: AGILENT Serial No: A00079848
Area 31: id (sw) Vendor: AGILENT Serial No: A00079356
```

To display detailed SFP information for a Core Switch 2/64 and SAN Director 2/128:

```
switch:admin> sfpshow 1/3
Identifier: 3      SFP
Connector: 7      LC
Transceiver: 050c402000000000 100,200_MB/s M5,M6 sw Inter_dist
Encoding: 1       8B10B
Baud Rate: 21     (units 100 megabaud)
Length 9u: 0      (units 100 meters)
Length 50u: 30    (units 10 meters)
Length 625u: 13   (units 10 meters)
Length Cu: 0      (units 1 meter)
Vendor Name: FINISAR CORP.
Vendor OUI: 00:90:65
Vendor PN: FTRJ-8519-3-2.5
Vendor Rev: X1
Options: 0012 Loss_of_Sig,Tx_Disable
BR Max: 0
BR Min: 0
Serial No: H112YFR
Date Code: 010418
```

## See Also

[switchShow](#)

## shellFlowControlDisable

Disables XON/XOFF flow control to the shell task.

### Synopsis

shellflowcontroldisable

### Availability

admin

### Description

Use this command to disable XON/XOFF flow control to the shell task. Disabling XON/XOFF flow control is the recommended behavior for the switch. Flow control disables for both serial port and telnet access into the command shell.

Once disabled, even in the event of a power failure, the switch boots up with XON/XOFF flow control disabled.

### Operands

none

### Example

To disable flow control:

```
switch:admin> shellflowcontroldisable  
Committing configuration...done.
```

### See Also

[shellFlowControlEnable](#)

## shellFlowControlEnable

Disables XON/XOFF flow control to the shell task.

### Synopsis

shellflowcontrolenable

### Availability

admin

### Description

Use this command to enable XON/XOFF flow control to the shell task. Disabling XON/XOFF flow control is the recommended behavior for the switch; however, if it becomes necessary to enable XON/XOFF flow control, it can be done with this command. Flow control enables for both serial port and telnet access into the command shell.

Once enabled, even in the event of a power failure, the switch boots up with XON/XOFF flow control enabled.

### Operands

none

### Example

To enable flow control:

```
switch:admin> shellflowcontrolenable
Committing configuration...done.
```

### See Also

[shellFlowControlDisable](#)

## slotOff

Disables a blade slot.

### Synopsis

```
slotOff slot
```

### Availability

admin

### Description

Use this command to disable a nonfaulty blade unit while leaving the blade unit powered on.

### Operands

This command has the following operand:

<code>slot</code>	Specify the physical slot number of the blade to be disabled. This operand is required.
-------------------	---

### Example

To power off blade unit 3:

```
switch:admin> slotOff 3  
Slot 3 is being disabled.
```

### See Also

[slotOn](#)  
[slotShow](#)

## slotOn

Enables a blade slot.

### Synopsis

```
slotOn slot
```

### Availability

admin

### Description

Use this command to reenable a blade unit that was previously disabled.

### Operands

This command has the following operand:

slot	Specify the physical slot number of the blade to be enabled. This operand is required.
------	--

### Example

To power off blade unit 3:

```
switch:admin> sloton 3  
Slot 3 is being enabled.
```

### See Also

[slotOff](#)  
[slotShow](#)

## slotPowerOff

Powers off a blade unit.

### Synopsis

```
slotPowerOff slot
```

### Availability

admin

### Description

Use this command to turn off the power to a blade unit. The slot must have a valid blade unit present and the blade unit must be of a type that can be powered off.

### Operands

This command has the following operand:

slot	Specify the physical slot number of the blade to be powered down. This operand is required.
------	---

### Example

To power off blade unit 3:

```
switch:admin> slotPowerOff 3  
Slot 3 is being powered off
```

### See Also

[slotPowerOn](#)  
[slotShow](#)

## slotPowerOn

Powers on a blade unit.

### Synopsis

```
slotPowerOn slot
```

### Availability

admin

### Description

Use this command to turn on the power to a blade unit. The slot must have a valid blade unit present and the blade unit must be currently powered off.

### Operands

This command has the following operand:

<code>slot</code>	Specify the physical slot number of the blade to be powered on. This operand is required.
-------------------	---

### Example

To power on blade unit 3:

```
switch:admin> slotPowerOn 3
Powering on slot 3.
```

### See Also

[slotPowerOff](#)

[slotShow](#)



slotShow

Displays slot status.

Synopsis

slotShow

Availability

all users

Description

Use this command to inventory and display the current status of each slot in the system. The format of the display includes a header and four fields for each slot. This command is supported only on the Core Switch 2/64 and SAN Director 2/128. The fields and their possible values are as follows:

Slot	Displays the physical slot number.
Blade Type	Displays the blade type: SW BLADE—The blade is a switch. CP BLADE—The blade is a Control Processor. UNKNOWN—Blade not present or its type is not recognized.
ID	Displays the hardware ID of the blade type. 1 represents a Core Switch 2/64 CP BLADE 2 represents a Core Switch 2/64 SW BLADE 4 represents a SAN Director 2/128 SW BLADE 5 represents a SAN Director 2/128 CP BLADE
Status	Displays the status of the blade: VACANT The slot is empty. INSERTED, NOT POWERED ON The blade is present in the slot but is turned off. DIAG RUNNING POST1 The blade is present, powered on, and running the POST1 (power on self tests1). DIAG RUNNING POST2 The blade is present, powered on, and running the POST (power on self test 2)

**ENABLED**

The blade is on and enabled.

**DISABLED**

The blade is powered on but disabled.

**FAULTY**

The blade is faulty because an error was detected.

**UNKNOWN**

The blade is inserted but its state cannot be determined.

## Operands

none

## Example

To display a blade inventory and status:

```
switch:admin> slotShow
Slot  Blade Type  ID    Status
-----
1      SW  BLADE      2     FAULTY
2      SW  BLADE      2     DISABLED
3      SW  BLADE      2     ENABLED
4      SW  BLADE      2     DIAG RUNNING POST2
5      CP  BLADE      1     ENABLED
6      CP  BLADE      1     ENABLED
7      UNKNOWN      VACANT
8      SW  BLADE      2     DIAG RUNNING POST1
9      SW  BLADE      2     INSERTED, NOT POWERED ON
10     UNKNOWN      VACANT
```

## See Also

[chassisShow](#)

[slotOff](#)

[slotOn](#)

[slotPowerOff](#)

[slotPowerOn](#)

## snmpMibCapSet

Views and modifies options for configuring SNMP MIB trap capability.

### Synopsis

```
snmpMibCapSet
```

### Availability

admin

### Description

This command enables a user to turn on or off certain MIBs and traps. This command also enables a user to turn on or off group information and SSN in SW trap messages. It first displays current settings and then prompts the user to change the values for each parameter.

- FA-MIB - Specifying *yes* means the user can access FA-MIB variables with an SNMP manager. The default value is *yes*.
- HA-MIB - Specifying *yes* means the user can access HA-MIB variables with an SNMP manager. The default value is *yes*.
- SW-TRAP - Specifying *yes* means the SNMP management application can receive SW-TRAPS from the switch. The default value is *yes*.
- FA-TRAP - Specifying *yes* means the SNMP management application can receive FA-TRAPS from the switch. The default value is *yes*.
- SW-EXTTRAP - Specifying *yes* means the SNMP management application can receive SW-EXTTRAPS from the switch. The default value is *yes*.
- HA-TRAP - Specifying *yes* means the SNMP management application can receive HA-TRAPS from the switch. The default value is *yes*.

### Operands

none

## Example

To view or modify the options for configuring SNMP MIB traps:

```
switch:admin> snmpmibcapset
The SNMP Mib/Trap Capability has been set to support
FE-MIB SW-MIB FA-MIB FICON-MIB HA-MIB SW-TRAP FA-TRAP FICON-TRAP HA-TRAP
FA-MIB (yes, y, no, n): [yes]
FICON-MIB (yes, y, no, n): [yes]
HA-MIB (yes, y, no, n): [yes]
SW-TRAP (yes, y, no, n): [yes]
FA-TRAP (yes, y, no, n): [yes]
SW-EXTTRAP (yes, y, no, n): [no] y
FICON-TRAP (yes, y, no, n): [yes]
HA-TRAP (yes, y, no, n): [yes]
```

## See Also

[agtCfgDefault](#)

[agtCfgSet](#)

[agtCfgShow](#)

## spinFab

Tests for cascaded switch ISL links.

### Synopsis

```
spinfab [-nmegs count][-ports itemlist][-setfail mode]  
[-domain value]
```

### Availability

admin

### Description

Use this command to verify the intended functional operation of the ISL links between switches. At the maximum speed of 2 Gbit/sec, set the routing hardware such that test frames received by each E\_Port retransmit on the same E\_Port. Next, send several frames to the neighbor port attached to each active E\_Port specified. The default action for such frames is to route them back to the sender, which never occurs for normal traffic. The frames circulate until the test stops them.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running. While the frames are circulating, the RX frame count and port CRC and encoder error statistics will be monitored and errors will be generated if a port stops or a low-level error occurs. Every one million frames, the circulating frames will be captured to verify that they are still circulating and that they are still in-order. In this manner, the entire path to the remote switch might be verified, as can be the proper in-order delivery operation of any trunk groups present.

The switch will remain in normal operation while this test is running; however, some performance degradation will occur due to the ISL links being saturated with test frames. Because of this, you should use caution when running this test on live fabrics. Consider only testing one trunk group or ISL link at a time, and do not run the tests for extended periods of time.

This test is best combined with the online [crossPortTest](#) for ISL link-failure isolation. If this test fails, replace the cable with a loop-back plug and run [crossPortTest](#) to verify the local switch and media. If these pass, the fault lies in the cable or remote switch and media.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

## Operands

This command has the following operands:

<code>-nmegs count</code>	Specify the number of frames to send in millions. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10, that is, 10 million frames. This command only approximately counts the frames and the actual number of frames sent will be slightly larger, particularly at 2G link speeds.
<code>-ports itemlist</code>	Specify a list of user ports to test. By default all of the ISL ports in the current switch will be tested. See the <code>itemlist</code> command for more information.
<code>-setfail mode</code>	This parameter may be used to cause spinfab to mark failing ports as bad. Specify a value 1 to mark failing ports as BAD, specify a value of 0 to not mark failed ports as bad. To minimize the impact on live fabrics this test normally logs errors but does not set the port status to FAILED. This parameter is provided to force the failing ports to be marked as BAD in the same manner as other diagnostics. In test or qualification environments without live traffic this may be useful with large values of nmil. This mode is disabled by default.
<code>-domain value</code>	The domain parameter is used to specify a specific remote domain that the switch is connected to. The default is to automatically determine the remote domain number. This operand is optional.

## Example

To test cascading ISL links:

```
switch:admin> spinfab -ports 1/0 - 1/2
spinfab running...
spinfab: Completed 11 megs, status: passed.
    port 0 test status: 0x00000000 -- passed.
    port 1 test status: 0x00000000 -- passed.
    port 2 test status: 0x00000000 -- passed.
Test Complete: "spinfab" Pass 10 of 10
Duration 0 hr, 0 min & 41 sec (0:0:41:877).
passed.
```

## Diagnostics

When it detects failure(s), the test might report one or more of the following error messages:

```
DATA
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FINISH_MSG_ERR
INIT
MBUF_STATE_ERR
NO_SEGMENT
PORT_ABSENT
PORT_DIED
PORT_ENABLE
PORT_M2M
PORT_STOPPED
PORT_WRONG
RXQ_RAM_PERR
STATS
STATS_C3FRX
STATS_FRX
STATS_FTX
TIMEOUT
XMIT
```

## See Also

[camTest](#)  
[centralMemoryTest](#)  
[cmemRetentionTest](#)  
[cmiTest](#)  
[crossPortTest](#)  
[itemList](#)

portLoopbackTest

spinSilk

sramRetentionTest



## spinSilk

Performs a functional test of internal and external transmit and receive paths at full speed.

### Synopsis

```
spinSilk [-nmegs count][[-lb_mode mode] [-spd_mode mode]
[-verbose mode][--ports itemlist]
```

### Availability

admin

### Description

This command verifies the functional operation of the switch by setting up the routing hardware so that frames received by port M are retransmitted through port N. Likewise frames received by port N are retransmitted through port M. Each port M sends one frame to its partner port N through an external fiber cable, exercising all of the switch components.

---

**Note:** The [spinSilk](#) command cannot be executed on an operational switch. You must first disable the switch using the [switchDisable](#) command.

---

The cables can be connected to any port combination with the condition that the cables and SFPs connected are of the same technology. For example, a short-wavelength SFP port must be connected to another short-wavelength SFP port through a short-wavelength cable.

Optimum test coverage occurs with lb\_mode 1, M->M loopback plugs and splbmode disabled. In this case every port will exchange frames with every other port and all of the ASIC to ASIC connections are tested.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test is running.

At each pass, the frame is created from a different data type. There are seven data types:

- CSPAT: 0x7e, 0x7e, 0x7e, 0x7e, ...

- BYTE\_LFSR: 0x69, 0x01, 0x02, 0x05, ...
- CHALF\_SQ: 0x4a, 0x4a, 0x4a, 0x4a, ...
- QUAD\_NOT: 0x00, 0xff, 0x00, 0xff, ...
- CQTR\_SQ: 0x78, 0x78, 0x78, 0x78, ...
- CRPAT: 0xbc, 0xbc, 0x23, 0x47, ...
- RANDOM: 0x25, 0x7f, 0x6e, 0x9a, ...

If seven passes are requested, the seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data types, and the eighth is the same as the first.

## spinSilk Modes

These are the test modes. These modes can be used together to test specific ports:

- Loopback mode
- SFP mode

## Loopback Mode

There are four loopback modes that can be used when executing the `spinSilk` command. The modes are specified by entering:

- 0 for cable mode. This loopback mode is the default mode and tests only M->N connections. It requires that the user connect a cable from one port to a different port.
- 1 for single port also loopback mode. This `lb_mode` tests M->N and M->M connections.

If M->N cable connections are used, the `spinsilk` command operates identically in `lb_mode 0` and `lb_mode 1`.

If M->M loopback plugs are used with SPLB mode disabled, the `spinsilk` command will circulate frames between pairs of M->M connected ports as follows:

```
P1 TX >>> P1 RX -> P2 TX >>> P2 RX -> P1 TX
```

where:

>>> is a cable or internal loopback

-> is a routing table entry

The connections between pairs of M->M ports are chosen to exercise the connections between as many ASICs as possible subject to the availability of pairs of M->M ports.

In mode 1 with SPLB mode disabled the `spinsilk` command only circulates frames within each single port and none of the ASIC to ASIC connections are tested. This mode should only be used for fault isolation.

- 2 for external loopback mode. The external loopback test creates a test loop between two ports on different ASICs and also tests the Serializer Deserializer functionality.
- 5 for internal loopback mode. The internal loopback test creates a test loop between two ports on a single ASIC.

See the `setSplbmode` command for more information on how the loopback mode setting changes the execution of this command.

### GBIC/SFP Mode

If the `spinSilk` command is executed with GBIC mode activated, only ports containing GBICs are tested. To activate GBIC mode, execute the following command prior to executing the `spinSilk` command:

```
switch:admin> setsfpmode 1
```

The state of the SFP mode is saved in non-volatile memory and remains active over a reboot until it is disabled as follows:

```
switch:admin> setsfpmode 0
```

Prior to running this command make sure you disable the switch, set the GBIC mode to 1, and install loopback cables on all GBIC ports you want to test.

Because this test includes the GBICs and the fiber cable in its test path, use the results from this test in conjunction with the results from `crossporttest` and `portloopbacktest` can be used to determine those switch components that are not functioning properly.

## Operands

This command has the following operands:

<code>-nmegs count</code>	Specify the number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value for <code>nmill</code> is 10, so the number of frames sent will be at least 10 million.
---------------------------	--

<code>-lb_mode mode</code>	<p>Specify the loopback point for the test. By default, <code>spinsilk</code> uses loopback plugs as described above. However for debug purposes you can select other loopback modes as follows:</p> <ul style="list-style-type: none"><li>0: Cable Loopback.</li><li>1: Port Loopback (loopback plugs).</li><li>2: External (SERDES) loopback.</li><li>3: Silkscreen loopback.</li><li>4: Serial link wrapback.</li><li>5: Internal (parallel) loopback.</li></ul>
<code>-spd_mode mode</code>	<p>Specify the speed mode for the test. For 1 Gbit/sec only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.</p> <ul style="list-style-type: none"><li>■ 0: set all ports' speed for auto-negotiate.</li><li>■ 1: set all ports' speed to lock at 1 Gbit/sec.</li><li>■ 2: set all port's speed to lock at 2 Gbit/sec.</li></ul> <p>For <code>lb_Mode == 0,1</code> the following speed modes are available to test the speed negotiation:</p> <ul style="list-style-type: none"><li>■ 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbit/sec.</li><li>■ 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbit/sec.</li><li>■ 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbit/sec.</li><li>■ 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbit/sec.</li></ul> <p>For <code>lb_Mode == 2,3</code> the following speed modes are available to test fifo underrun.</p> <p>3,5: set all even ports' speed for 2 Gbit/sec, set all odd ports' speed for 1 Gbit/sec.</p> <p>4,6: set all even ports' speed for 1 Gbit/sec, set all odd ports' speed for 2 Gbit/sec.</p>
<code>-verbose mode</code>	<p>Specify a non-zero value, to display more detailed information during the test. This mode should be used for debugging purpose. This operand is optional.</p>
<code>-ports itemlist</code>	<p>Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option may be used to restrict testing to the specified ports.</p>

## Example

To run `spinSilk` on a switch:

```
switch:admin> spinsilk -ports 1/0 - 1/2
Running Spin Silk .....
One moment please ...Ports Segmented (0)
switchName:      switch
switchType:      10.1
switchState:     Offline
switchRole:      Disabled
switchDomain:    1 (unconfirmed)
switchId:        fffc01
switchWwn:       10:00:00:60:69:80:03:0c
switchBeacon:    OFF
blade1: Beacon:  OFF
blade2: Beacon:  OFF
blade3: Beacon:  OFF
blade4: Beacon:  OFF

Area Slot Port Gbic Speed State
=====
  0    1    0   id   2G   Online   Testing   .....
  1    1    1   id   2G   Online   Testing   .....
  2    1    2   id   2G   Online   Testing   .....
<output truncated>
```

## Diagnostics

Below are the possible error messages if failures are detected:

```
DATA
EPI1_STATUS_ERR
ERR_STAT
ERR_STATS
ERR_STATS_2LONG
ERR_STATS_BADEOF
ERR_STATS_BADOS
ERR_STATS_C3DISC
ERR_STATS_CRC
ERR_STATS_ENCIN
ERR_STATS_ENCOUT
ERR_STATS_TRUNC
ERR_STAT_2LONG
ERR_STAT_BADEOF
ERR_STAT_BADOS
ERR_STAT_C3DISC
ERR_STAT_CRC
ERR_STAT_ENCIN
ERR_STAT_ENCOUT
ERR_STAT_TRUNC
FDET_PERR
FINISH_MSG_ERR
```

```
FTPRT_STATUS_ERR  
INIT  
LESSN_STATUS_ERR  
MBUF_STATE_ERR  
MBUF_STATUS_ERRBAR>  
NO_SEGMENT  
PORT_ABSENT  
PORT_DIED  
PORT_ENABLE  
PORT_M2M  
PORT_STOPPED  
PORT_WRONG  
RXQ_FRAME_ERR  
RXQ_RAM_PERR  
STATS  
STATS_C3FRX  
STATS_FRX  
STATS_FTX  
TIMEOUT  
XMIT
```

## See Also

[backport](#)

[camTest](#)

[centralMemoryTest](#)

[cmemRetentionTest](#)

[cmiTest](#)

[crossPortTest](#)

[itemList](#)

[portLoopbackTest](#)

[portRegTest](#)

[sramRetentionTest](#)

## sramRetentionTest

Performs a data retention test of the miscellaneous SRAMs in ASIC.

### Synopsis

```
sramRetentionTest [--slot number][--passcnt count]  
[-ports itemlist][-skip bitmask][-delay value]
```

### Availability

admin

### Description

Use this command to verify that data written into the miscellaneous SRAMs in the ASIC are retained after a 10 second wait. The method used is to write a fill pattern to all SRAMs, wait 10 seconds, and then read all SRAMs, checking that the data read matches the data previously written. Then the test is repeated using the inverted version of the pattern. The test will use four QUAD\_FILL patterns and one QUAD\_RAMP pattern with random seed. The first four QUAD\_FILL patterns are:

```
0xfffffffff  
0x55555555  
0x33333333  
0x0f0f0f0f0f
```

For details about the patterns used in diagnostic tests, see the [dataTypeShow](#) command.

---

**Note:** The [sramRetentionTest](#) command cannot be executed on an operational switch. You must first disable the switch using the [switchDisable](#) command.

---

## Operands

This command has the following operand:

<code>--slot number</code>	Specify the slot number that the diagnostic will operate. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed port count products.
<code>-passcnt count</code>	Specify the number of times to execute this test. The default value is 1.
<code>-ports itemlist</code>	Specify a list of blade ports to test. By default all the blade ports in the specified slot will be used. See <code>itemlist</code> for more details.
<code>-skip bitmask</code>	Specify a patterns to skip in the test. This command will use the data patterns described above by default. Using this option, the user can intentionally skip one or more pattern(s) if needed.
<code>-delay value</code>	Specify the delay between the read and write in seconds. The default value is 10 seconds.

## Example

To run a data retention test:

```
switch:admin> sramRetentionTest
Running SRAM Retention Test ... passed.
```

## Diagnostics

Below are the possible error messages if failures are detected:

```
BUS_TIMEOUT
REGERR
REGERR_UNRST
```

## See Also

[centralMemoryTest](#)  
[cmiTest](#)  
[filterTest](#)  
[portLoopbackTest](#)  
[portRegTest](#)



`spinSilk`

`turboRamTest`

## statsTest

Runs a statistics counter diagnostic test.

### Synopsis

```
statsTest [-passcnt count][-ports itemlist]
```

### Availability

admin

### Description

Use this command to verify the 2 Gbit/sec ASIC statistics counter logic. It can run on every base port of quadrant, and send the frame through internal loopback with no CRC data to induce the CRC error. This command is also run from [camTest](#).

This test covers the following statistics counter functionality:

1. The number of received frames with CRC error that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0–15), respectively.
2. The number of received words in frames that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0–15), respectively.
3. The number of transmitted words in frames that matched the SID-DID pair specified in the LINK table. There are a total 16 of these statistics counters (0–15), respectively.
4. The number of frames with CRC error that matched the corresponding ALI (0–127), respectively.

This command cannot be executed on an operational switch. You must first disable the switch using the [switchDisable](#) command.

---

**Note:** There is a LINK table that stores 16 pairs of SID-DID address. Each of the SID-DID pair is named a LINK. This table is used for gathering statistics that match the LINK.

---

## Operands

This command has the following operands:

- |                              |  |
|------------------------------|--|
| <code>-passcnt count</code>  | Specify the number of times to perform this test. The default value is 1. This operand is optional.  |
| <code>-ports itemlist</code> | Specify a list of user ports to run the test. If omitted, all the user ports in the switch will be assumed. See <a href="#">itemList</a> for more information about selecting ports. This operand is optional. |

## Example

To run a statistics counter test on a switch:

```
switch:admin> statstest -passcnt 1 -ports 1/0-15
Running Statistics Counter Test ..... passed.
```

## Diagnostics

When it detects failures, the subtest might report one or more of the following error messages:

```
DIAG-STSINIT
DIAG-STSNUL
DIAG-STSSID
DIAG-STSXMIT
DIAG-STSRCV
DIAG-STSFRCNT
DIAG-STSWRDCNT
DIAG-STSPALPACNT
```

## See Also

[centralMemoryTest](#)  
[cmiTest](#)  
[filterTest](#)  
[portLoopbackTest](#)  
[portRegTest](#)  
[spinSilk](#)  
[sramRetentionTest](#)  
[turboRamTest](#)

## stopPortTest

Terminates the running [portTest](#).

### Synopsis

```
stopporttest [-ports itemlist]
```

### Availability

admin

### Description

Use this command to stop the currently running [portTest](#). See the [portTest](#) command for more information. If [portTest](#) is running on a non-singlemode, use [stopPortTest](#) to stop the test.

### Operands

This command has the following operand:

<code>-ports itemlist</code>	Specify a list of user ports to test. By default all the user ports in the current slot will be assumed. See <a href="#">itemList</a> help pages for further details.
------------------------------	---

### Example

To stop the [portTest](#) command:

```
switch:admin> stopporttest
```

### See Also

[crossPortTest](#)  
[fportTest](#)  
[loopPortTest](#)  
[portLoopbackTest](#)

`portTest`

`portTestShow`

`spinFab`

## supportShow

Prints switch information for debugging purposes.

### Synopsis

For a Core Switch 2/64 and SAN Director 2/128:

```
supportShow slotnumber[/port1-port2] [lines]
```

For a SAN Switch 2/32:

```
supportShow [port1-port2] [lines]
```

### Availability

all users

### Description

Use this command to display support information from groups of preselected Fabric OS and Linux commands. You can specify the range of ports for which this information is display. See “[supportShow Reference](#)” on page 851, for more information.

---

**Note:** The output from this command can be very long.

These commands are organization by groups, but note that the order of the groups listed below is not the same as executed by the command.

---

The commands have been arranged in groups identified as follows:

- OS (ENABLED by default) - Linux commands are not documented in this manual.

```
mii-tool
du
ps
rpm
dmesg
fstab
mtab
various proc entries
find core files
```

- exception (ENABLED by default)

`errDump`

- port (ENABLED by default)

`diagShow` (per-slot)  
`portShow` (per-slot)  
`portLoginShow` (per-slot)  
`portregshow` (per-slot)  
`portRouteShow` (per-slot)

- fabric (ENABLED by default)

`fabricShow`  
`islshow`  
`trunkShow`  
`topologyShow`  
`fabStateShow`  
`fabswitchshow`  
`fabPortShow`  
`fspfShow`  
`fcplgshow`  
`zone-stateshow`  
`portZoneShow`  
`portCamShow`  
`cfgShow`  
`cfgSize`  
`rcssmshow`  
`rcsinfoshow`  
`rcsregistryshow`

- services (ENABLED by default)

`fdmiCacheShow`  
`fdmiShow`  
`ficonDbg dump rnid`  
`ficonDbg log`  
`ficonDbg rnid`  
`ficonShow ilir`  
`ficonShow lirr`  
`ficonShow rlir`  
`ficonShow rnid`  
`ficonShow switchrnid`  
`nsShow`  
`nsAllShow`  
`nscamShow`

---

**Note:** Although referenced in this guide, HP does not support FICON at this time.

---

## ■ security (ENABLED by default)

```
secModeShow
secStatsShow
secFabricShow
```

## ■ network (ENABLED by default)

```
bootenv
sin
df
ifconfig
route
hostname
```

## ■ portlog (ENABLED by default)

```
portLogDump
```

## ■ system (ENABLED by default)

```
myId
version
firmwareShow
upTime
switchStatusShow
switchShow
haDump (includes haShow and ipAddrShow)
haDump
sensorShow
psShow
licenseShow
portFlagsShow
portCfgShow
portErrShow
fwsamshow
agtCfgShow
slotShow (product-dependent)
fwAlarmsFilterShow
chassisShow
timeout
historyShow
portSwapShow
configShow
```

## ■ extend (DISABLED by default)

```
buffers (per-port)
credits (per-port)
data (per-port)
phantom (per-port)
properties (per-port)
statistics (per-port)
```



- **filter** (DISABLED by default). This group has lengthy output.

```
filterportshow (per-port)
perfmon (DISABLED by default).
ps_dump (per-port) This group has lengthy output.
Operands
```

This command has the following operands:

slotnumber	Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15). The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.
port1-port2	Specifies the first port of a range of ports to display information. Enter the port area number. Both <code>port1</code> and <code>port2</code> must be provided if a range of ports is specified. For the Core Switch 2/64 and SAN Director 2/128, a slot number is required if a port-range is specified. If no range is specified, then all the ports for the slot or switch are specified.
lines	Specifies the number of lines of <a href="#">portLogDump</a> output to display. This operand is optional.

## Example

To display switch information for debugging:

```
switch:admin> supportshow 1/1-3
supportshow groups enabled: system
version:
Kernel:      2.4.19
Fabric OS:   v4.1.0
Made on:     Fri Jan 10 01:06:10 2003
Flash:       Thu Jan 17 00:06:52 2003
BootProm:    3.2.1

uptime:
 10:49am  up   3:25,  1 user,  load average: 1.55, 1.20, 1.11

switchshow:
switchName:      switch
switchType:      10.1
switchState:     Online
switchMode:      Native
switchRole:      Principal
switchDomain:    1
switchId:        fffc01
switchWwn:       10:00:00:60:69:80:03:0c
zoning:          OFF
switchBeacon:    OFF
blade1 Beacon:   OFF

---<output truncated>---
```

## See Also

[supportShowCfgDisable](#)

[supportShowCfgEnable](#)

[supportShowCfgShow](#)

## supportShowCfgDisable

Disables a group of commands under the [supportShow](#) command.

### Synopsis

```
supportshowcfgdisable [os/exception/port/fabric/  
services/security/network/portlog/system  
extend/filter/perfmon
```

### Availability

admin

### Description

Use this command to disable a group of commands under the [supportShow](#) command. Use the [supportShowCfgEnable](#) command to enable groups of commands. See “[supportShow Reference](#)” on page 851, for more information

### Operands

This command has the following operand:

commgroup	Specify a command group to disable that group from displaying under the <a href="#">supportShow</a> command. The operand must be entered exactly as shown. At least one group must be specified. The groups are as follows:
	■ os
	■ exception
	■ port
	■ fabric
	■ services
	■ security
	■ network
	■ portlog
	■ system
	■ extend
	■ filter
	■ perfmon

## Example

To disable the os group of commands under the [supportShow](#) command:

```
switch:admin> supportshowcfgdisable os  
Config update Succeeded
```

## See Also

[supportShow](#)

[supportShowCfgEnable](#)

[supportShowCfgShow](#)

## supportShowCfgEnable

Enables a group of commands under the [supportShow](#) command.

### Synopsis

```
supportshowcfgenable [os/exception/port/fabric/
services/security/network/portlog/system
extend/filter/perfmon
```

### Availability

admin

### Description

Use this command to enable a group of commands under the [supportShow](#) command. Use the [supportShowCfgDisable](#) command to disable groups of commands. See “[supportShow Reference](#)” on page 851, for more information

### Operands

This command has the following operands:

commgroup	Specify a command group to disable that group from displaying under the <a href="#">supportShow</a> command. The operand must be entered exactly as shown. At least one group must be specified. The groups are as follows:
	<ul style="list-style-type: none"> <li>■ os</li> <li>■ exception</li> <li>■ port</li> <li>■ fabric</li> <li>■ services</li> <li>■ security</li> <li>■ network</li> <li>■ portlog</li> <li>■ system</li> <li>■ extend</li> <li>■ filter</li> <li>■ perfmon</li> </ul>

## Example

To enable a group of commands under the [supportShow](#) command:

```
switch:admin> supportshowcfgenable os  
Config update Succeeded
```

## See Also

[supportShow](#)

[supportShowCfgDisable](#)

[supportShowCfgShow](#)

## supportShowCfgShow

Displays the groups of commands enabled for display by the [supportShow](#) command.

### Synopsis

supportshowcfgshow

### Availability

admin

### Description

Use this command to display the groups of commands enabled for display by the [supportShow](#) command. Use the [supportShowCfgEnable](#) and the [supportShowCfgDisable](#) commands to modify which groups are displayed. See “[supportShow Reference](#)” on page 851, for more information

### Operands

none

### Example

To display which groups of commands are enabled in the [supportShow](#) command:

```
switch:admin> supportshowcfgshow
os                enabled
exception         enabled
port              enabled
fabric            enabled
services          enabled
security          enabled
network           enabled
portlog           enabled
system            enabled
extend            disabled
filter            disabled
perfmon           disabled
```

## See Also

[supportShow](#)

[supportShowCfgDisable](#)

[supportShowCfgEnable](#)



## switchBeacon

Sets switch beaconing mode on or off.

### Synopsis

```
switchBeacon [mode]
```

### Availability

admin

### Description

Use this command to enable or disable the switch beaconing mode. When beaconing mode is turned on, the port LEDs flash amber in a running pattern. The user sees a running pattern in amber LEDs, from left to right and right to left. The pattern continues until turned off by the user.

Beaconing mode affects only the port LEDs. Other commands are still executable and functional. The normal flashing LED pattern (associated with an active, faulty or disabled port) is suppressed and the beaconing pattern is shown. However, if diagnostic frame-based tests ([portLoopbackTest](#), [crossPortTest](#), and [spinSilk](#)) are executed, two patterns are interleaved. The diagnostic test flickers the LEDs green and simultaneously the beaconing mode runs the LEDs amber.

Use the [switchShow](#) command to display the status of beaconing.

### Operands

This command has the following operand:

<i>mode</i>	Specify 1 to enable beaconmode or 0 to disable beaconmode. This operand is optional.
-------------	--

If no operand is specified the current value is displayed.

### Examples

To turn beaconing mode ON:

```
switch:admin> switchBeacon 1
```

To turn beaconing mode OFF:

```
switch:admin> switchBeacon 0
```

### See Also

[switchShow](#)

## switchCfgPersistentDisable

Disables switch persistently.

### Synopsis

```
switchcfgpersistentdisable
```

### Availability

admin

### Description

Use this command to persistently disable the switch. The persistently disabled switch remains disabled across power cycles and switch reboots. It will not participate in fabric reconfiguration and will remain isolated from the rest of the topology. By default a switch is enabled persistently.

When this command is executed, it will become effective immediately by disabling the switch, if it is not already disabled.

The persistent switch disable configuration overrides all other switch configurations but it does not alter any of them. The [switchCfgPersistentEnable](#) command will enable the switch persistently. The persistent switch enable will also reenables all previously set switch configurations.

The persistent switch disable configuration will override port persistent enable configurations but it will not alter them.

The persistently disabled switch will still run the power on diagnostics and initialize all the ports.

A persistently disabled switch can temporarily be enabled by [switchEnable](#) command until next switch disable, power cycle, or switch reboot.

### Operands

none

## Example

To disable a switch persistently:

```
switch:admin> switchcfgpersistentdisable
Committing configuration...done.
Command in progress . . . . . done
```

## See Also

[configShow](#)  
[configure](#)  
[portCfgPersistentDisable](#)  
[portCfgPersistentEnable](#)  
[portCfgShow](#)  
[portShow](#)  
[switchCfgPersistentEnable](#)  
[switchShow](#)

## switchCfgPersistentEnable

Enables a switch persistently.

### Synopsis

```
switchcfgpersistentenable
```

### Availability

admin

### Description

Use this command to persistently enable the switch. The persistently enabled switch remains enabled across power cycles and switch reboots. By default a switch is enabled persistently.

When this command is executed, it will be effective immediately by enabling the switch, if it is not already enabled.

The persistent switch disable configuration overrides all other switch configurations but it does not alter any of them. The persistent switch enable will also reenables all previously set switch configurations.

A persistently enabled switch can temporarily be disabled by [switchDisable](#) command until next switch enable, power cycle, or switch reboot.

The persistent switch disable or enable configuration does not alter the persistent disable or enable configurations of the ports within the switch.

### Operands

none

### Example

To configure the switch as persistently enabled:

```
switch:admin> switchcfgpersistentenable
Committing configuration...done.
Command in progress . . . . . done
```

## See Also

[configShow](#)  
[configure](#)  
[portCfgPersistentDisable](#)  
[portCfgPersistentEnable](#)  
[portCfgShow](#)  
[portShow](#)  
[switchCfgPersistentDisable](#)  
[switchShow](#)

## switchCfgSpeed

Configures all ports of the switch to a particular speed level.

### Synopsis

```
switchCfgSpeed speed_level
```

### Availability

admin

### Description

Use this command to configure the speed of all the ports on a switch to a particular level. The configuration is saved in the nonvolatile memory and persists across switch reboot or power cycle.

The output of [portShow](#) and [portCfgShow](#) displays the speed level. In the [portShow](#) output, the speed level is indicated as the current port speed of “1Gb/s” or “2Gb/s.” In the [portCfgShow](#) output, the speed level is indicated as “1G,” “2G,” or “AN” (auto-negotiate).

### Operands

This command has the following operand:

speed_level	Specify the speed of a port. This operand is required. Valid values are one of the following: 0: Auto-sensing mode. The port automatically configures for the highest speed. 1: 1-Gb/s mode. The port will be at fixed speed of 1-Gb/s. 2: 2-Gb/s mode. The port will be at fixed speed of 2-Gb/s.
-------------	---

### Example

To set the speed level for all ports on a switch:

```
switch:admin> switchCfgSpeed 2  
done.
```

## See Also

[portCfgSpeed](#)

[switchShow](#)



## switchCfgTrunk

Enables or disables trunking on all the ports of a switch.

### Synopsis

`switchCfgTrunk mode`

### Availability

admin

---

**Note:** This command requires the Trunking license.

---

### Description

Use this command to enable or disable trunking on all the ports of a switch.

### Operands

This command has the following operand:

mode	Specify 1 to enable trunking on all the ports on this switch. Specify 0 to disable trunking on all the ports on this switch. This operand is required.
------	--

### Example

To enable trunking on a switch:

```
switch:admin> switchCfgTrunk 1
done.
```

### See Also

[portCfgShow](#)  
[portCfgTrunkport](#)  
[portCfgShow](#)  
[switchShow](#)

## switchDisable

Disables the switch.

### Synopsis

switchDisable

### Availability

admin

### Description

Use this command to disable the switch. All Fibre Channel ports are taken offline; if the switch was part of a fabric, the remaining switches reconfigure.

The switch must be disabled before making configuration changes (using [configure](#) or [configDefault](#)) or before running many of the diagnostic tests. All commands that require the switch to be disabled send an error if invoked while the switch is enabled.

The switch does not need to be disabled before rebooting or powering off.

As each port is disabled, the front panel LED changes to a slow flashing yellow.

### Operands

none

### Example

To disable the switch:

```
switch:admin> switchDisable
```

### See Also

[switchEnable](#)

[switchShow](#)

## switchEnable

Enables the switch.

### Synopsis

switchEnable

### Availability

admin

### Description

Use this command to enable the switch. All Fibre Channel ports that passed POST are enabled. They can come online if connected to a device, or remain offline if disconnected. A switch might need to be enabled if it was previously disabled to make configuration changes or to run diagnostics.

If the switch is connected to a fabric, it rejoins the fabric. When this command is issued, the 10 second fabric stability count down is displayed. If this switch remains the principal switch at the end of the count down, then it assigns itself a domain ID. If another switch assumes the principal role, then this switch becomes a subordinate switch, and accepts a domain ID from the principal. See FC-SW for a complete description of this process.

As each port is enabled, the front panel LED changes to green for online ports, black for disconnected ports, or yellow for un-initialized ports.

### Operands

none

### Example

To enable a switch:

```
switch:admin> switchEnable
10 9 8 7 6 5 4 3 2 1
fabric: Principal switch
fabric: Domain 1
```

## See Also

[switchDisable](#)

[switchShow](#)

## switchName

Displays or sets the switch name.

### Synopsis

```
switchName [ "newName" ]
```

### Availability

all users (display)

admin (set)

### Description

Use this command to display or set the switch name. All switches have a symbolic name that is primarily used for switch management. This name is also shown in the Fabric OS CLI prompt, under each switch icon on the Fabric Web page, and in the output of various Fabric OS commands, such as [fabricShow](#).

Enter this command with no operand to display the current switch name.

Use this command with the *newname* operand to assign a new switch name. Switch names can be up to 15 characters long, must begin with an alpha character, and can consist of any combination of alphanumeric, and underscore characters.

Changing the switch name causes a domain address format RSCN to be issued (see FC-FLA for a description of RSCNs).

The switch's name also might be changed using Web Tools.

### Operands

This command has the following operand:

newName	Specify a new name for the switch, in quotation marks. This operand is optional.
---------	--

## Example

To change a switch name to sw10:

```
switch:admin> switchName "sw10"  
Committing configuration...  
Done.  
sw10:admin>
```

## See Also

[fabricShow](#)

[switchShow](#)

## switchReboot

Halts and brings down the operational Core Switch 2/64 switch.

### Synopsis

```
switchReboot
```

### Availability

admin

### Description

This command reboots the operational switch without disrupting the other switch in the Core Switch 2/64 chassis. This command will be used by the administrator when he cannot determine the problem with the switch and want to bring it back to an operational state with out disturbing the software state of the system in general.

This command is equal to running [switchShutdown](#) and [switchStart](#).

---

**Note:** For the Core Switch 2/64, the [switchReboot](#) command reboots only the logical switch you are currently logged into, the other logical switch and both CPs remain unaffected.

---

### Operands

none

## Example

To bring down an operational switch:

```
switch:admin> switchreboot
Selecting i2c bus...Done.
Stopping all switch daemons...Done.
Releasing i2c bus...Done.
Powering off slot 7...Done.
Checking all slots are powered off....Done.
Cleaning up kernel modules...Done.
Initializing kernel modules...Done.
setup FCIP IP: ifconfig fc1 ip=192.168.69.190, netmask=255.255.255.0
Starting all switch daemons...Done.
Powering on slot 7...Done.
Checking diagnostics.....
Start Apache -- /etc/rc.d/init.d/httpd.sh start 1 192.168.174.95
192.168.69.190
Start snmpd -- /etc/rc.d/init.d/snmpd.sh start 1
starting http server [1] ...
.Starting snmpd:\n
SNMP Research SNMP Agent Resident Module Version 15.2.1.3
Copyright 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999
SNMP
Research, Inc..
/fabos/webtools/bin/apachectl.1 start: httpd started
done.
```

## See Also

[switchShutdown](#)

[switchStart](#)



switchShow

Displays switch and port status.

Synopsis

switchShow [-portcount]

Availability

all users

Description

Use this command to display switch and port status information. Information might vary by switch model. The first section provides switch summary information; it is followed by a section covering summary information by port.

Switch summary information:

switchName	Displays the switch symbolic name.
switchType	Displays the switch model number.
switchState	Displays the switch state: online, offline, testing, faulty.
switchRole	Displays the switch role: principal, subordinate, disabled.
switchDomain	Displays the switch domain ID: 0-31 or 1-239.
switchId	Displays the switch embedded port D_ID.
switchWwn	Displays the switch World Wide Name.
switchBeacon	Displays the switch's beaconing state (either ON or OFF).
blade_n:Beacon	Displays the blade's beaconing state (either ON or OFF). Each blade is numbered by its position in the hp StorageWorks Core Switch 2/64 chassis (from 1 to 10).

The switch summary is followed by one line per port:

Area	Part of the 24-bit port ID, which consists of domain, area number, and optional AL_PA.
Slot	Slot number. The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have 10 slots numbered from 1 to 4 and 7 to 10. Slots 5 and 6 are control processor cards.

Port	Port number. Valid values vary depending on the switch type. The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have 16 ports per slot number 0 to 15.
Media Type	<p>Media type:</p> <ul style="list-style-type: none"><li>■ -- No module present</li><li>■ sw - Shortwave laser</li><li>■ lw - Longwave laser</li><li>■ cu - Copper</li><li>■ id - Serial ID</li></ul> <p>Use <code>sfpshow</code> to view whether a serial ID SFP is sw/lw/cu.</p>
Speed	<p>The speed of the port:</p> <ul style="list-style-type: none"><li>■ 1/8G - 125 Mbps</li><li>■ 1/4G 250 Mbps</li><li>■ 1/2G - 500Mbps</li><li>■ 1G - 1-Gbps fixed transfer speed</li><li>■ 2G - 2-Gbpsvfixed transfer speed</li><li>■ N1 - 1-Gbps negotiated transfer speed</li><li>■ N2 - 2-Gbps negotiated transfer speed</li><li>■ AN - Auto negotiating</li></ul>
State	<p>Port state information:</p> <ul style="list-style-type: none"><li>■ No_Card - no interface card present</li><li>■ No_Module - no module (SFP or other) present</li><li>■ No_Light - module not receiving light</li><li>■ In_Sync - module receiving light but out of sync</li><li>■ In_Sync - module receiving light and in sync</li><li>■ Laser_Flt - module signaling a laser fault</li><li>■ Port_Flt - port marked faulty</li><li>■ Diag_Flt - port failed diagnostics</li><li>■ Lock_Ref - locking to the reference signal</li><li>■ Testing - running diagnostics</li><li>■ Online - port is up and running.</li></ul>

<code>comment</code>	<p>The comment field might be blank, or it might display:</p> <ul style="list-style-type: none"><li>■ Disabled - port is disabled</li><li>■ Bypassed - port is bypassed (loop only)</li><li>■ Loopback - port is in loopback mode</li><li>■ E_Port - fabric port, shows WWN and name of attached switch</li><li>■ F_Port - point-to-point port, shows WWN of attached N_Port</li><li>■ G_Port - point-to-point but not yet E_port or F_Port</li><li>■ L_Port - loop port, shows number of NL_Ports</li><li>■ (Trunk master) - This port is the master port in a group of trunking ports</li><li>■ (Trunk port, master is port #x) - This port is configured as a trunking port, the master port is port number x.</li><li>■ (upstream) - This E_Port is an upstream path towards the principal switch of the fabric.</li><li>■ (downstream) - This E_Port is a downstream path away from the principal switch of the fabric.</li><li>■ WWN - This is the WWN of the switch connected to the E_Port.</li><li>■ "switch_name" - This is the switch name of the connected switch.</li></ul>
----------------------	--

## Operands

<code>-portcount</code>	Returns the number of ports on the switch.
-------------------------	--

**Example**

To display a Core Switch 2/64:

```
switch:admin> switchshow
switchName:      switch
switchType:      10.1
switchState:     Online
switchRole:      Subordinate
switchDomain:     4
switchId:        fffc04
switchWwn:       10:00:00:60:69:00:54:e9
switchBeacon:    OFF
blade7 Beacon:   OFF
blade9 Beacon:   OFF

Area Slot Port Gbic Speed State
=====
0      7      0  --    N2    No_Module
1      7      1  --    N2    No_Module
2      7      2  --    N2    No_Module
3      7      3  id    N2    No_Light
4      7      4  id    N2    Online E-Port (Trunk port, master is Slot 7 Port5)
5      7      5  id    N2    Online E-Port 10:00:00:60:69:00:54:e8 "san94" (up
stream) (Trunk master)
6      7      6  id    N2    Online E-Port (Trunk port, master is Slot 7 Port
5)
7      7      7  id    N2    Online E-Port (Trunk port, master is Slot 7 Port
5)
8      7      8  --    N2    No_Module
9      7      9  --    N2    No_Module
10     7     10  --    N2    No_Module
11     7     11  --    N2    No_Module
12     7     12  id    N2    No_Light
13     7     13  id    N2    No_Light
14     7     14  id    N2    No_Light
15     7     15  id    N2    Online L-Port 8 public
32     9      0  --    N2    No_Module
33     9      1  --    N2    No_Module
34     9      2  --    N2    No_Module
35     9      3  --    N2    No_Module
36     9      4  --    N2    No_Module
37     9      5  --    N2    No_Module
38     9      6  --    N2    No_Module
39     9      7  --    N2    No_Module
40     9      8  id    N2    Online E-Port (Trunk port, master is Slot 9 Port
9)

--<continued on next page>__
```

```
41 9 9 id N2 Online E-Port 10:00:00:60:69:50:08:d5 "sqad11" (d
ownstream) (Trunk master)
42 9 10 id N2 Online E-Port (Trunk port, master is Slot 9 Port
9)
43 9 11 id N2 Online E-Port (Trunk port, master is Slot 9 Port
9)
44 9 12 -- N2 No_Module
45 9 13 -- N2 No_Module
46 9 14 -- N2 No_Module
47 9 15 id N2 Online F-Port 10:00:00:00:c9:27:2e:9b
```

See Also

- [switchDisable](#)
- [switchEnable](#)
- [switchName](#)

## switchShutdown

Halts the operational Core Switch 2/64 switch.

### Synopsis

```
switchShutdown
```

### Availability

admin

### Description

Use this command to halt the switch operation without disrupting the other switch in the chassis. This command disables a logical switch in a Core Switch 2/64 without disturbing the software state of the system in general.

This command has to be used in combination with [switchStart](#).

This command will bring down all the daemons associated with the switch; free the resources and object states associated with the switch to a clear state and will disable all the ports/blades associated with the switch.

---

**Note:** This command is not supported on the SAN Director 2/128 and nonblade systems.

---

### Operands

none

**Example**

To bring down the current logical switch without disrupting the other switch in the chassis:

```
switch:admin> switchshutdown
Stopping all switch daemons...Done.
Powering off slot 1...Done.
Powering off slot 4...Done.
Checking all slots are powered off...Done.
Cleaning up kernel modules...Done.
```

**See Also**

[switchReboot](#)

[switchStart](#)

## switchStart

Initializes the Core Switch 2/64 switch to operational.

### Synopsis

switchStart

### Availability

admin

### Description

This command initializes the switch without disrupting the other switch in the chassis. This command enables a logical switch in a Core Switch 2/64 without disturbing the software state of the system in general.

This command has to be used in combination with [switchShutdown](#).

This command will start all the daemons associated with the switch; initialize the object states associated with the switch to a clear state and will enable all the ports/blades associated with the switch.

---

**Note:** This command is not supported on the SAN Director 2/128 and nonblade systems.

---

### Operands

none

### Example

To initialize the logical switch to operational:

```
switch:admin> switchstart
Initializing kernel modules...Done.
Starting all switch daemons...Done.
Powering on slot 1...Done.q> to stop
Powering on slot 4...Done.q> to stop
Checking diagnostics...Done.
setup FCIP IP: ifconfig fc0 ip=0.0.0.0, netmask=255.255.255.0
```



**See Also**

[switchReboot](#)

[switchShutdown](#)

## switchStatusPolicySet

Sets the policy parameters that determine the overall switch status.

### Synopsis

```
switchStatusPolicySet
```

### Availability

admin

### Description

Use this command to set the policy parameters for calculating the overall status of the switch enclosure. The policy parameter values determine how many failed or faulty units of each contributor are allowed before triggering a status change in the switch from HEALTHY to MARGINAL or DOWN.

The command prints the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. This command then prompts the user to change the values for each policy parameter. The default values for the policy parameters are as follows:

**Table 14: Contributor Value and Status**

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingSFPs	0	0
PowerSupplies	2 in the 2 Gb SAN Switch 3 in the Core Switch 2/64 2 in the SAN Director 2/128	1
Temperatures	2	1
Fans	2	1
PortStatus	0	0
ISLStatus	2	1

Any single contributor can force the overall status of the switch to MARGINAL or DOWN. For example, assuming that the switch contributor values are set to the default values, if there is 1 faulty port in a switch, then this contributor would set the overall switch status to MARGINAL. If 2 ports were faulty, then this contributor would set the overall switch status to DOWN.

This command enables you to set a threshold for each contributor, so that a certain number of failures are required to change the overall status of the switch.

If the value of a policy parameter is set to 0, it means that this factor is not used to determine the status of the switch. If the range of values for a particular contributor are set to 0 for both MARGINAL and DOWN, that contributor is not used in the calculation of the overall switch status.

ISLStatus monitors ISLs that are part of a defined switch group. The status of other ISLs on the same switch but outside of the group definition will not be considered when calculating switch status. If no switch groups are defined on this switch, then these ISLStatus settings will have no effect on switch status.

The ISLStatus does not affect the status of the switch as quickly as the other contributors. It might take a few minutes for a switch group ISL status change to affect the state of the switch.

When **PortStatus** monitoring is set to values of (0,0), port status changes are not logged to the event log and console. Similarly, SFP removal does not generate a message to the event log and console if **MissingSFPs** is set to (0,0). By configuring these options, the user can more closely monitor for port status and/or removal of SFPs.

## Operands

none

## Example

To change the number of faulty ports that define Down and Marginal:

```
switch:admin> switchstatuspolicyset
To change the overall switch status policy parameters
The current overall switch status policy parameters:
-----
          Down      Marginal
-----
FaultyPorts  2          1
MissingSFPs  0          0
PowerSupplies 2          1
Temperatures 2          1
          Fans  2          1
PortStatus   0          0
ISLStatus    0          0
Note that the value, 0, for a parameter, means that it is
NOT used in the calculation.
** In addition, if the range of settable values in the prompt is (0..0),
** the policy parameter is NOT applicable to the switch.
** Simply hit the Return key.

The minimum number of
FaultyPorts contributing to
          DOWN status: (0..32) [2] 3
FaultyPorts contributing to
          MARGINAL status: (0..32) [1] 2
MissingSFPs contributing to
          DOWN status: (0..32) [0]
MissingSFPs contributing to
          MARGINAL status: (0..32) [0]
Bad PowerSupplies contributing to
          DOWN status: (0..2) [2]
Bad PowerSupplies contributing to
          MARGINAL status: (0..2) [1]
Bad Temperatures contributing to
          DOWN status: (0..5) [2]
Bad Temperatures contributing to
          MARGINAL status: (0..5) [1]
Bad Fans contributing to
          DOWN status: (0..6) [2]
Bad Fans contributing to
          MARGINAL status: (0..6) [1]
Down PortStatus contributing to
          DOWN status: (0..32) [0]
Down PortStatus contributing to
          MARGINAL status: (0..32) [0]
down ISLStatus contributing to
          DOWN status: (0..32) [0]
down ISLStatus contributing to
          MARGINAL status: (0..32) [0]
Policy parameter set has been changed
```

**See Also**

[switchStatusPolicyShow](#)

[switchStatusShow](#)

## switchStatusPolicyShow

Displays the policy parameters that determine the overall switch status.

### Synopsis

```
switchStatusPolicyShow
```

### Availability

all users

### Description

Use this command to view the current policy parameters set for the switch. These policy parameters determine the number of failed or nonoperational units allowed for each contributor before triggering a status change in the switch.

The command will print the current parameters in a three column table format. The first column specifies the contributor; the second column specifies the minimum number that contributes to the DOWN/FAILED status; the third column specifies the minimum number that contributes to the MARGINAL/WARNING status. The default values for the policy parameters are as follows:

**Table 15: Contributor Value and Status**

Contributor	Default Value for DOWN	Default Value for MARGINAL
FaultyPorts	2	1
MissingSFPs	0	0
PowerSupplies	2 in the 2 Gb SAN Switch 3 in the Core Switch 2/64 2 in the SAN Director 2/128	1
Temperatures	2	1
Fans	2	1
PortStatus	0	0
ISLStatus	2	1

The policy parameters determine the number of failed or non-operational units for each contributor that trigger a status change in the switch. For example, if the FaultyPorts DOWN parameter is set to 3, and 3 ports fail in the switch, then the status of the switch changes to DOWN.

Operands

none

Example

To display the switch status policy:

```
switch:admin> switchStatusPolicyShow
The current overall switch status policy parameters:
      Down      Marginal
-----
FaultyPorts    2          1
MissingSFPs    0          0
PowerSupplies  2          1
Temperatures   2          1
      Fans      2          1
PortStatus     0          0
ISLStatus      0          0
```

See Also

- [switchStatusPolicySet](#)
- [switchStatusShow](#)

## switchStatusShow

Displays the overall status of the switch.

### Synopsis

switchStatusShow

### Availability

all users

### Description

Use this command to display the overall status of the switch. The overall status is calculated based on the most severe status of all contributors:

- Internal Switch Status
- Faulty Ports
- Missing SFPs
- Power Supplies
- Fans
- Temperatures
- Port Status

The overall status can be one of the following:

- Healthy/OK - every contributor is healthy
- Marginal/Warning - one or more components are causing a warning status
- Down/Failed - one or more contributors have failed

If the overall status is not HEALTHY/OK, the contributing factors are listed.

### Operands

none



## Example

Of the following two status examples, the first displays a switch with a status of MARGINAL, the second displays the same switch after all the errors have been fixed:

```
switch:admin> switchStatusShow
The overall switch status is Marginal/Warning
Contributing factors:
* 1 missing power supply triggered the Marginal/Warning status
* 1 bad fans, 2 good fans triggered the Marginal/Warning status
* 1 missing SFP triggered the Marginal/Warning status

switch:admin> switchStatusShow
The overall switch status is HEALTHY/OK
```

## See Also

[switchStatusPolicySet](#)

[switchStatusPolicyShow](#)

## switchUptime

Displays the amount of time the switch has been operating.

### Synopsis

switchuptime

### Availability

all users

### Description

Use this command to display the current time and the amount of time the switch has been operational.

### Operands

none

### Example

To view the uptime for the switch:

```
switch:admin> switchuptime  
2:00pm    up for 17 hrs 44 mins
```

### See Also

[switchReboot](#)

[switchShutdown](#)

[switchStart](#)

## syslogDIpAdd

Adds the IP address of a syslog daemon.

### Synopsis

```
syslogdIpAdd "ip_address"
```

### Availability

admin

### Description

Use this command to add the IP address of a syslog daemon, that is, the IP address of the server which is running the syslogd process. Syslog daemon (syslogd) is a process available on most UNIX systems that reads and forwards system messages to the appropriate log files or users, depending on the system configuration.

When one or more IP addresses are configured, the switch forwards all error log entries to the `syslogd` on the specified server(s). Up to six servers are supported.

### Operands

This command has the following operand:

<code>ip_address</code>	Specify the IP address of the server running <code>syslogd</code> . This operand is required.
-------------------------	---

### Example

To add the address 192.168.1.60 to the list of machines to which system messages are sent:

```
switch:admin> syslogdIpAdd "192.168.1.60"
```

## See Also

[errShow](#)

[syslogDIpRemove](#)

[syslogDIpShow](#)

## syslogDipRemove

Removes the IP address of a syslog daemon.

### Synopsis

```
syslogdIpRemove "ip_address"
```

### Availability

admin

### Description

Use this command to remove the IP address of a syslog daemon, that is, the IP address of the server which is running the `syslogd` process.

### Operands

This command has the following operand:

<code>ip_address</code>	Specify the IP address of the server running <code>syslogd</code> . This operand is required.
-------------------------	---

### Example

To remove the address 192.168.1.60 from the list of machines to which system messages are sent:

```
switch:admin> syslogdIpRemove 192.168.1.60
```

### See Also

[errShow](#)

[syslogDipAdd](#)

[syslogDipShow](#)

## syslogDipShow

Displays all syslog daemon IP addresses.

### Synopsis

syslogdIpShow

### Availability

all users

### Description

Use this command to display all syslog daemon IP addresses in the configuration database.

### Operands

none

### Example

To display all syslog daemon IP addresses:

```
switch:admin> syslogdIpShow
syslog.IP.address.1:    192.168.1.60
syslog.IP.address.2:    192.168.1.88
syslog.IP.address.3:    192.168.1.77
```

### See Also

[errShow](#)

[syslogDipAdd](#)

[syslogDipRemove](#)

## systemVerification

Runs a suit of diagnostic tests on all switches in a fabric.

### Synopsis

```
systemverification [-parameters | -short][[-fru  
type]-unitid]
```

### Availability

admin

### Description

Use this command to run a comprehensive system-wide test of all switches in a system. It will initiate a burn-in run on all switches within the current system. The optional -fru and -unit parameters allow you to focus the testing to a single blade in a multiblade system.

The run can be terminated by issuing a **Ctrl-C** from the initiating terminal. All of the burn-in features are operational during the [systemVerification](#) command. The `burninerrshow` displays the stored burn-in errlogs, the logs by blade are saved in `/var/log/switchburnin.<switch>.<slot>` files. On the fixed-port-count products, the slot defaults to 0.

The command monitors the testing, and terminates the burn-in activity if all the elements fail. Each failing slot only outputs the first observed failure. Since this monitoring is a polling activity, the command number output might not be the exact command number that failed. After the testing terminates, `burninstatus` command is output, and the `burninerrshow` messages for the failing slots are output. If all slots pass, then only the `burninstatus` command output displays.

The burn-in tests are designed to operate with switches connected to a fabric and restricts the frame loopback to inside the unit. If loopback plugs are installed in all ports, the burn-in parameter `min_lb_mode` can be changes to 1 to test the Fibre Channel through the loopback plug.

---

**Note:** This command is specifically designed to operate and diagnose both logical switches of a Core Switch 2/64 simultaneously. This command only needs to be run against one logical switch, and both logical switches will be verified. Running this test on both logical switches at the same time causes a duplication of the verification diagnostic to be run, and an oversubscription of free memory.

---

## Options

This command has the following options:

<code>-parameters</code>	Invokes the <code>diagsetcycle</code> command before starting the burnin run. This will allow users to modify the burnin parameters prior to the run. These <code>diagsetcycle</code> parameters are copied to all switches in the system and override the original settings in the database. If the <code>diagsetcycle</code> parameter is not specified, then the run will use the previously stored values. This option does not perform a <code>burninerrclear</code> operation prior to starting the testing operation.
<code>-short</code>	Sets the burnin parameters that control the number of frames to 1. The primary use for this command is for software regression testing, or a quick validation that all hardware is operational. The shorter test cycle will not have enough test time to detect intermittent errors. This option performs a <code>burninerrclear</code> operation prior to starting the testing operation.
<code>-fru type</code>	Use to focus testing on a single FRU in the system. The valid options for <i>type</i> are BLADE, PS, FAN, and WWN; however, only BLADE is supported at this time. Since only one FRU type is supported, this parameter is optional, but <code>-unit</code> is required for single FRU testing.
<code>-unit id</code>	Use to focus testing on a single FRU in the system. The <i>id</i> for a FRU type of BLADE correlates to the slot number of the FRU to be tested.

## Diagnostics

Each diagnostic test in this suit might report its own set of error messages when it detects failure(s). See the Diagnostics section of individual diagnostic test help pages. These messages are only available in the log file.



Example

To initiate a system verification test on all switches in the fabric:

```
switch:admin> systemverification -short
systemverification: Setting parameters for short run.
systemverification: burnin parameters.
CURRENT - KEYWORD      : DEFAULT
1      - number_of_runs : 1
2      - vib            : 2
10     - thermal        : 10
SYSTEMVERIFICATION    - label : BURNIN
2      - min_lb_mode    : 2
1      - tbr_passes     : 1
1      - prt_on         : 1
1      - cntmem_on      : 1
1      - cmi_on         : 1
1      - retention_on   : 1
1      - cam_on         : 1
1      - flt_passes     : 50
1      - sta_passes     : 25
1      - plb_nframes    : 100
1      - txd_nframes    : 50
1      - xpt_nframes    : 200
1      - bpt_nframes    : 20
1      - slk_nmegs      : 50
1      - bpt_all_nframes : 30
1      - slk_all_nmegs  : 50
systemverification: Arming the burnin run on switch 0.
systemverification: Starting burnin on Switch 0
systemverification: Monitoring progress of the burnin activity.
systemverification: Outputting Status
State      Status  Run   Cmd   TotCmds Script
COMPLETED PASS    1     22    22     switchburnin.sh
```

See Also

- [diagSetBurnin](#)
- [diagSetCycle](#)

## tempShow

Displays temperature readings.

### Synopsis

tempShow

### Availability

all users

### Description

Use this command to display the current temperature readings of all temperature sensors in a switch. Each temperature sensor has an index. The indices start from 1. There can be more than one sensor per slot. The slot number to which a sensor belongs is displayed in the column next to the index. The temperature readings are given in both Centigrade and Fahrenheit.

### Operands

none

### Example

To display a Core Switch 2/64:

```
switch:admin> tempshow
```

Index	Slot	State	Centigrade	Fahrenheit
1	1	Ok	47	116
2	2	Absent		
3	3	Absent		
4	4	Ok	46	114
5	5	Ok	33	91
6	6	Ok	33	91

---

**Note:** For the Core Switch 2/64, this command only returns the temperature sensor values for the logical switch you are logged into, not for the entire chassis.

---

To display an hp StorageWorks SAN Switch 2/32:

```
switch:admin> tempshow
```

Index	Slot	State	Centigrade	Fahrenheit
1	0	Ok	39	102
2	0	Ok	41	105
3	0	Ok	27	80
4	0	Ok	39	102
5	0	Ok	42	107

See Also

[fanShow](#)

[psShow](#)

[sensorShow](#)

[slotShow](#)

## timeout

Sets or displays the IDLE timeout value for a login session.

### Synopsis

```
timeout [timeval]
```

### Availability

admin (show / set)

all users (for viewing only)

### Description

Use this command with no operands to display the current telnet timeout value. Use this command with an operand to sets the idle timeout value to the specified minutes. Using a timeout value of 0 will disable the timeout functionality so that login sessions would never be disconnected.

### Operands

This command has the following operand:

<code>timeval</code>	Specify the number of minutes for the telnet timeout value. This operand is optional.
----------------------	---

### Example

To set the idle timeout to 10 minutes:

```
switch:admin> timeout 10
IDLE TimeOut Changed to 10 minutes
The modified IDLE Timeout will be in effect after NEXT login
```

**topologyShow**

Displays the unicast fabric topology.

**Synopsis**

```
topologyShow [domainnumber]
```

**Availability**

all users

**Description**

Use this command to display the fabric topology, as it appears to the local switch. This includes:

- A list of all domains that are part of the fabric, and to each of those domains, all possible paths from the local switch.
- For each path - cost, the number of hops from the local switch to the destination switch, and a summary of all ports are routed through that path.

A path is described by the output port that a frame addressed to a certain domain will be forwarded to by the switches' routing hardware, in order to reach the domain.

With the domain number specified, this command displays the topology information for the specified destination domain.

The display contains the following fields:

Local Domain ID	Domain number of local switch.
Domain	Domain number of destination switch.
Metric	Cost of reaching destination domain.
Name	The name of the destination switch.
Path Count	The number of currently active paths to the destination domain.
Hops	The maximum number of hops to reach destination domain.
Out Port	Port that incoming frame will be forwarded to, in order to reach the destination domain.

In Ports	Input ports that use the corresponding Out Port to reach the destination domain. This is the same information provided by <code>portRouteShow</code> and <code>uRouteShow</code> .
Total Bandwidth	The maximum bandwidth of the out port.
Bandwidth Demand	The maximum bandwidth demand by the in ports.
Flags	Always "D," indicating a dynamic path. A dynamic path is discovered automatically by the FSPF path selection protocol.

## Operands

This command has the following operand:

domainnumber	Specify the destination domain for which topology information is to be displayed. This operand is optional. When no domain number is specified, this command displays the topology information of all the domains in the fabric.
--------------	--

## Example

To display the unicast fabric topology:

```
switch:admin> topologyShow

2 domains in the fabric; Local Domain ID: 1
Domain:          6
Metric:          500
Name:            cylon218
Path Count:      4
  Hops:          1
  Out Port:      60
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
  Hops:          1
  Out Port:      61
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
  Hops:          1
  Out Port:      62
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
  Hops:          1
  Out Port:      58
  In Ports:      None
  Total Bandwidth: 2 Gbps
  Bandwidth Demand: 0 %
  Flags:         D
```

## See Also

[portRouteShow](#)  
[urouteShow](#)

## trackChangesHelp

Displays information on track-changes feature commands.

### Synopsis

trackchangeshelp

### Availability

all users

### Description

Use this command to display information about the track-changes commands.

### Example

To display information on the track-changes feature commands:

```
switch:admin> trackchangeshelp
trackChangesSet    Configure alert for login/logout/config update
trackChangesShow   Displays status of track changes
```

### See Also

[trackChangesSet](#)  
[trackChangesShow](#)



**trackChangesSet**

Enables configuring of track-changes feature.

**Synopsis**

```
trackChangesSet [mode] [, snmptrapmode]
```

**Availability**

admin

**Description**

This command enables or disables the track-changes feature. An SNMP-TRAP mode can also be enabled. Trackable changes are:

- Successful login
- Unsuccessful login
- Logout
- Config file change from task
- Track-changes on
- Track-changes off

The output from the track-changes feature is dumped to the error log for the switch. Use the [errDump](#) command or [errShow](#) command to view the error log.

**Operands**

This command has the following operands:

mode	Specify 1 to enable the track-changes feature or specify 0 to disable the feature. The default (if no operand is specified) is to disable the track-changes feature. This operand is optional.
snmptrapmode	Specify 1 to enable errors to be sent to the SNMP-TRAP in addition to the errlog or specify 0 to disable the SNMP-TRAP messages. The default (if no operand is specified) is to disable SNMP-TRAP messages. This operand is optional.

## Example

To enable the track-changes feature:

```
switch:admin> trackchangeset 1, 1
Committing configuration...done.
switch:admin> trackchangesshow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

## See Also

[agtCfgSet](#)  
[agtCfgShow](#)  
[trackChangesHelp](#)  
[trackChangesShow](#)

## trackChangesShow

Displays status of track-changes feature.

### Synopsis

trackChangesShow

### Availability

all users

### Description

Use this command to display status of the track-changes feature. It displays if the feature is turned on or off and if SNMP traps are generated.

The output from the track-changes feature is dumped to the error log for the switch. Use the [errDump](#) command or [errShow](#) command to view the error log.

### Operands

none

### Example

To display the status of the track-changes feature:

```
switch:admin> trackChangesShow
Track changes status: ON
Track changes generate SNMP-TRAP: YES
```

### See Also

[trackChangesHelp](#)

[trackChangesSet](#)

## trunkDebug

Debugs a trunk link failure.

### Synopsis

```
trunkDebug port1, port2
```

### Availability

admin

### Description

Use this command to debug a trunk link failure. This command reports one of the following messages based on the trunking properties of the two specified ports:

- Switch does not support trunking
- Trunking license required
- port<port\_id> is not E\_Port
- port<port\_id> trunking disabled
- port<port\_id> speed is not 2G
- port<port\_id> and port<port\_id> are not on same quad
- port<port\_id> and port<port\_id> connect to different switches
- port<port\_id> is not Trunking port due to: E\_Port being disabled, or trunking might be disabled at remote port
- port<port\_id> and port<port\_id> can't trunk, please check link length to make sure difference is less than 400 m

### Operands

This command has the following operands:

<code>port1</code>	Specify the area number of port1. Use the <code>switchshow</code> command to view the area numbers for a port. This operand is required.
<code>port2</code>	Specify the area number of port2. Use the <code>switchshow</code> command to view the area numbers for a port. This operand is required.

## Example

To debug a trunk connection:

```
switch:admin> trunkdebug 3,4  
port 2 is not E port
```

## See Also

[portCfgTrunkport](#)

[switchCfgTrunk](#)

[trunkShow](#)

**trunkShow**

Displays trunking information.

**Synopsis**

trunkshow

**Availability**

all users

**Description**

Use this command to display trunking information. The following fields display:

Trunking Group Number	Displays each trunking group on a switch. All the ports that are part of this trunking group are displayed.
Port to port connections	Displays the port-to-port trunking connections.
WWN	Displays the WWN of the connected port.
deskew	The time difference for traffic to travel over each ISL as compared to the shortest ISL in the group. The number corresponds to nanoseconds divided by 10. The firmware automatically sets the minimum deskew value of the shortest ISL to 15.
Master	Displays whether this trunking port connection is the master port connection for the trunking group.

**Operands**

none

**Example**

To display trunking information for a switch:

```
switch:admin> trunkshow

1: 2 -> 60    10:00:00:60:69:80:4f:85    deskew 16    MASTER
   3 -> 61    10:00:00:60:69:80:4f:85    deskew 15
2: 7 -> 39    10:00:00:60:69:80:4f:85    deskew 17    MASTER
   6 -> 38    10:00:00:60:69:80:4f:85    deskew 16
   5 -> 36    10:00:00:60:69:80:4f:85    deskew 16
   4 -> 37    10:00:00:60:69:80:4f:85    deskew 15
3: 24 -> 56   10:00:00:60:69:80:4f:85    deskew 16    MASTER
   25 -> 57   10:00:00:60:69:80:4f:85    deskew 15
4: 29 -> 33   10:00:00:60:69:80:4f:85    deskew 16    MASTER
   28 -> 32   10:00:00:60:69:80:4f:85    deskew 15
```

**See Also**

[portCfgTrunkport](#)  
[switchCfgTrunk](#)

## tsClockServer

Displays or set the NTP Server address.

### Synopsis

```
tsclockserver [ipaddr]
```

### Availability

all users (display)

admin (set)

### Description

Use this command to synchronize the local time of the principal or primary FCS switch to an external NTP server.

The time server daemon synchronizes fabric time by sending updates of the principal or primary FCS local switch time periodically to every switch in the fabric. The time server daemon runs on all switches in the fabric, but only the principal switch (when the security feature not enabled), or the primary FCS switch (when the security feature is enabled) connect to the NTP server, and broadcast time service updates.

All switches in the fabric maintain the current clock server IP address in nonvolatile memory. By default this value is "LOCL". Changes to the clock server IP address on the principal or primary FCS switch are propagated to all switches in the fabric.

Use this command with no parameters to display the current clock server IP address being used. Specify the `ipaddr` operand to set the clock server IP address, and enable fabric-wide clock synchronization with the specified clock server.

The NTP server used MUST support a full NTP client. Fabric OS v3.1.0 and v2.6.1 have an SNTP client and hence will accept an SNTP or NTP server but v4.1.0 has an NTP client; so for the proper functioning of a mixed fabric with external time synchronization it is necessary an NTP server that supports a full NTP client be used.



The `ipaddr` specified should be the IP address of an NTP server and should be accessible from the switch. When a clock server IP address other than LOCL is specified but is not used by the fabric, a warning is displayed and logged. When a clock server IP address other than LOCL is specified, the [date](#) command will be restricted to display only. See the [date](#) command for more details.

---

**Note:** When secure mode is enabled, this command can be run on all switches to view the NTP server's IP address. You can only modify the NTP server's IP address on the primary FCS switch.

---

## Operands

This command has the following operand:

<code>ipaddr</code>	Specify the IP address of the NTP server. This operand is optional. By default this value is "LOCL."
---------------------	--

If no operand is specified, the current value displays.

## Example

To display the current clock server value (LOCL), set the value to an NTP server at the specified IP address, and then verify that the new IP address was saved:

```
switch:admin> tsclockserver
LOCL
switch:admin> tsclockserver "123.123.123.123"
Updating Clock Server configuration...done.
switch:admin> tsclockserver
123.123.123.123
```

## See Also

[date](#)

## tsHelp

Displays the time service commands.

### Synopsis

tshelp

### Availability

all users

### Description

Use this command to display a list of time service commands.

### Example

To display a list of time service commands:

```
switch:admin> tshelp

tsTimeZone           Display or set the system Time Zone
tsClockServer        Display or set the NTP Server address
```

## tsTimeZone

Displays or sets the system time zone.

### Synopsis

```
tstimezone [hourOffset [, minuteOffset]]
```

### Availability

all users (display)

admin (set)

### Description

Use this command to display or set the system time zone.

All switches maintain the current time zone setup in nonvolatile memory. Changing the time zone on a switch updates the local time zone setup and is reflected in local time calculations.

All switches are by default in the 0,0 time zone, that is GMT. If all switches in a fabric are in one time zone, it is possible to leave the time zone setup at the default.

Time zone is used only in computing local time which is used for error reporting and logging. An incorrect time zone setup will not affect the switch operation in any way.

Enter this command with no parameters, to display the time zone setup. With the valid parameters, it sets the time zone for an individual switch.

Negative hourOffset values mean the local time is behind GMT.

Example: -8,0 is GMT-08:00

Positive hourOffset values mean the local time is ahead of GMT.

Example: 3, 0 is GMT+03:00

## Operands

This command has the following operands:

hourOffset	Specify the number of hours relative to GMT. This operand must be specified as an integer. Valid values are -12 through 12. This operand is optional.
minuteOffset	Specify the number of minutes relative to the hourOffset. This operand must be specified as an integer. Valid values are -30, 0, or 30. This operand is optional.

## Examples

To display the current time zone setup, then changes them to GMT-3:30:

```
switch:admin> tsTimeZone
Time Zone Hour Offset: 0
Time Zone Minute Offset: 0
switch:admin> tsTimeZone -3, -30
Updating Time Zone configuration...done.
switch:admin> tsTimeZone
Time Zone Hour Offset: -3
Time Zone Minute Offset: -30
```

## See Also

[date](#)

## turboRamTest

Performs a turbo SRAM logic test for 2 Gbit/sec ASICs.

### Synopsis

```
turboramtest [--slot number][--passcnt count][--ports  
itemlist]
```

### Availability

admin

### Description

This command verifies the on chip SRAM located in the 2 Gbit/sec ASIC using the turbo-ram BIST circuitry. These same SRAMS are tested by [portRegTest](#) and [sramRetentionTest](#) using PCI operations, but for this test the BIST controller is able to perform the SRAM write and read operations at a much faster rate. It is also able to test one SRAM in each quadrant of every chip in parallel.

The test flow for each SRAM is as follows:

1. Fill RAM with alternating FFFF 0000 pattern. (Subtest 1: turboram memory fill)
2. For each incrementing address read, FFFF 0000 pattern and write 0000 FFFF. (Subtest 2: turbo-ram r-m-w inc 1)
3. For each incrementing address read, 0000 FFFF pattern and write FFFF 0000. (Subtest 3: turbo-ram r-m-w inc 2)
4. For each decrementing address read, FFFF 0000 pattern and write 0000 FFFF. (Subtest 4: turbo-ram r-m-w dec 1)
5. For each decrementing address read, 0000 FFFF pattern and write FFFF 0000. (Subtest 5: turbo-ram r-m-w dec 2)
6. Repeat steps 1–5 with AAAA 5555 pattern.

## Operands

This command has the following operands:

<code>--slot number</code>	<p>Specify the slot number in a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. The slot number must be followed by a slash ( / ) and the port number.</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 10 slots counted from 1 to 10. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are switch cards. On each switch card, there are 16 ports counted from the bottom, 0 to 15. A particular port must be represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>This operand is not required for switches that do not have slots.</p>
<code>-passcnt count</code>	<p>Specify the number of times to perform this test. The default value is 1. This operand is optional.</p>
<code>-ports itemlist</code>	<p>Specify a list of blade ports to test. By default all the blade ports in the specified slot are tested. See the <code>itemlist</code> command help page for more information. This operand is optional.</p>

## Example

To execute this test:

```
switch:admin> > turboramtest -passcnt 2 -ports 2/0-2/63
Running Turbo RAM Test ..... passed.
```

## Diagnostics

When it detects failure(s), the subtest might report one or more of the following error messages:

```
DIAG-WTEST
DIAG-INC_RWTEST
DIAG-DEC_RWTEST
DIAG-RAMINIT_TO
```

## See Also

[camTest](#)  
[centralMemoryTest](#)

`cmiTest`

`portRegTest`

`sramRetentionTest`

## txdPath

Performs a functional test of ASIC pair TXA, TXD connections.

### Synopsis

```
txdpath [-slot number] [-nframe count] [-lb_mode  
mode] [-spd_mode] [-nonstop mode]  
[-ports itemlist]
```

### Availability

admin

### Description

Use this command to verify the TXA, TXD, and CMI data paths between the chips within a mini-switch. This is done by configuring all of the ports on the mini-switch in internal loopback and sending a frame from each quadrant to each other port on the same mini-switch. The frame starts from the CPU and is transmitted by the first port which also receives the frame and deposits it in central memory. The second port then reads the frame from central memory using its own TXA, TXD path. The frame is then looped back one more time and is sent back to the CPU where it is compared with the transmitted data.

Only one frame is transmitted and received at any one time. External cable is not required to run this test. The port LEDs flicker green rapidly while the test is running. The test method is as follows:

1. Set all ports present for parallel loopback. Then for each pair of source quadrants and destination ports:
2. Set up source port to route frames to destination port and destination port to route frames to CPU.
3. Transmit frame F via source port.
4. Pick up the frame from destination port.
5. Check if any of the 8 statistic error counters are nonzero:  

```
ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF, Enc_out,  
BadOrdSet, DiscC3.
```
6. Repeat steps 2 through 5 for all ports present until:



- The number of frames (or `-nmegs count`) requested is reached,
- All ports are marked bad

At each pass, a different data type is used to create the frame from a palette of seven; meaning if a pass of seven is requested, seven different frames are used in the test. If eight passes, the first seven frames are unique, and the 8th is the same as the first. The data palette of seven are:

- CSPAT: 0x7e, 0x7e, 0x7e, 0x7e, ...
- BYTE\_LFSR: 0x69, 0x01, 0x02, 0x05, ...
- CHALF\_SQ: 0x4a, 0x4a, 0x4a, 0x4a, ...
- QUAD\_NOT: 0x00, 0xff, 0x00, 0xff, ...
- CQTR\_SQ: 0x78, 0x78, 0x78, 0x78, ...
- CRPAT: 0xbc, 0xbc, 0x23, 0x47, ...
- RANDOM: 0x25, 0x7f, 0x6e, 0x9a, ...

If seven passes are requested, the seven different data types are used in the test. If eight passes are requested, the first seven frames use unique data type.

The following operands are optional.

## Options

This command has the following options:

- |                           |   |
|---------------------------|---|
| <code>-slot number</code> | This option specifies the slot number that the diagnostic will operate on. The ports specified will be relative to this slot number. The default is set to 0 and designed to operate on fixed-port-count products.              |
| <code>-nmegs count</code> | Specify the number of million frames to send. The test will progress until the specified number of frames has been transmitted on each port. The default value is 10, so the number of frames sent will be at least 10 million. |

<code>-lb_mode mode</code>	<p>Specify the loopback point for the test. By default, this command uses loopback plugs as described above. However for debug purposes you can select other loopback modes as follows:</p> <ul style="list-style-type: none"><li>■ 0: Cable Loopback.</li><li>■ 1: Port Loopback (loopback plugs).</li><li>■ 2: External (SERDES) loopback.</li><li>■ 3: Silkscreen loopback.</li><li>■ 4: Serial link wrapback.</li><li>■ 5: Internal (parallel) loopback.</li></ul>
<code>-spb_mode mode</code>	<p>Specify the speed mode for the test. For 1 Gbit/sec only products it is ignored. The exact operation of modes 3 through 6 depends upon the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN to ODD or the test will fail.</p> <ul style="list-style-type: none"><li>■ 0: set all ports' speed for auto-negotiate.</li><li>■ 1: set all ports' speed to lock at 1 Gbit/sec.</li><li>■ 2: set all port's speed to lock at 2 Gbit/sec.</li></ul> <p>For <code>lbMode == 0,1</code> the following speed modes are available to test the speed negotiation:</p> <ul style="list-style-type: none"><li>■ 3: set all even ports' speed for auto-negotiate, set all odd ports' speed for 1 Gbit/sec.</li><li>■ 4: set all even ports' speed for auto-negotiate, set all odd ports' speed for 2 Gbit/sec.</li><li>■ 5: set all odd ports' speed for auto-negotiate, set all even ports' speed for 1 Gbit/sec.</li><li>■ 6: set all odd ports' speed for auto-negotiate, set all even ports' speed for 2 Gbit/sec.</li></ul> <p>For <code>lbMode== 2,3</code> the following speed modes are available to test fifo underrun.</p> <ul style="list-style-type: none"><li>■ 3,5: set all even ports' speed for 2 Gbit/sec, set all odd ports' speed for 1 Gbit/sec.</li><li>■ 4,6: set all even ports' speed for 1 Gbit/sec, set all odd ports' speed for 2 Gbit/sec.</li></ul>
<code>-nonstop mode</code>	<p>Specify the non-stop mode. If set to nonzero value, test will not stop on the first error. The default value is 0.</p>

`-ports itemlist`

Specify a list of user ports to test. By default all of the user ports in the current switch are tested. This option might be used to restrict testing to the specified ports.

## Example

To run the `txdPath` test:

```
switch:admin> txdpath
Running Tx Data Path Test ..... passed.
Test Complete: "txdpath" Pass 10 of 10
Duration 0 hr, 0 min & 47 sec (0.0.47.645).
```

## Diagnostics

When it detects failure(s), the test might report one or more of the following error messages:

```
DATA
ERRSTAT
INIT
PORTDIED
STATS
TIMEOUT
XMIT
```

## See Also

[backport](#)

[camTest](#)

[centralMemoryTest](#)

[cmemRetentionTest](#)

[cmiTest](#)

[crossPortTest](#)

[itemList](#)

[portLoopbackTest](#)

[portRegTest](#)

[spinSilk](#)

[sramRetentionTest](#)

## upTime

Displays length of time the system has been operational.

### Synopsis

```
uptime
```

### Availability

all users

### Description

Use this command to display the length of time the system has been in operation (also known as “up time”), the total cumulative amount of “up time” since the system was first powered-on, the date and time of the last reboot, and the reason for the last reboot.

For up and powered-on times less than 60 seconds, the time is displayed in seconds. For times greater than or equal to 60 seconds, the time is displayed in minutes. The output format adjusts accordingly.

The reason for the last switch reboot is also recorded in the error log. Reasons are listed below. Not all the below responses are applicable to all switch models:

Unknown	Reason is unknown.
Bus time-out*	Port ASIC was accessed and no response was received.
Bus error*	Non-existent system address was accessed.
Panic*	Firmware detected a critical hardware error or an internal inconsistency.
Fault*	CPU signaled a fault condition (critical firmware error).
Power-on	Last reboot was caused by a power-on.
Watchdog*	Watchdog timer caused a reset.
PushButtons	Push buttons 1 and 3 were depressed for two seconds, causing a system reset.
Reboot	Last reboot was caused by a user (from any management interface).
Powerfail NMI*	Power supply caused a nonmaskable interrupt.

Watchdog NMI*	Watchdog timer caused a nonmaskable interrupt.
PushButton NMI*	Push buttons 2 and 4 were depressed for two seconds, causing a nonmaskable interrupt.
Software NMI*	Firmware caused a nonmaskable interrupt.

---

**Note:** The items marked with an asterisk (\*) are usually caused by hardware or firmware failures. Information on the failure is stored in the switch. Follow the procedures in the switch manual.

---

## Operands

none

## Example

To display the length of time the system has been operational:

```
switch:admin> uptime
12:03am up 4:56, 3 users, load average: 1.17, 1.08, 1.08
```

## See Also

[date](#)  
[fastBoot](#)  
[reboot](#)

## uRouteConfig

Configures a static route.

### Synopsis

```
uRouteConfig InArea Domain OutArea
```

### Availability

admin

### Description

Use this command to configure static routes. A static route is a route that is assigned to a specific path, and will not change when a topology change occurs, unless the path used by the route becomes unavailable.

After this command is issued, and if `OutArea` is a usable port, all frames coming in from `InArea` port addressed to `Domain` will be forwarded through `OutArea` port.

If `OutArea` port is not usable, then the routing assignment is not affected by this command. When `OutArea` port becomes usable again, the static route assignment for `InArea` is enforced.

`OutArea` port is usable if it is on a minimum cost path to the destination domain.

`InArea` port can be either an `F_Port` or an `E_Port`.

---

**Note:** When using static routes, load sharing might be affected. The switch attempts to achieve optimum load sharing, but if too many routes are statically configured to use the same *output* port, a fair load sharing might not be achievable.

In order to prevent routing loops, static route configuration using a non-minimum cost path is not allowed. If an attempt is made to configure such a route, the user is queried on whether or not the entry should be saved in the database.

---

## Operands

This command has the following operands:

InArea	Specify the port to be statically routed. This operand is required.
Domain	Specify the destination domain. This operand is required.
OutArea	Specify the output port where traffic is forwarded. This operand is required.

## Examples

To configure a static route for all traffic coming in from port 1 and addressed to domain 2 to go through port 5:

```
switch:admin> uRouteConfig 1 2 5
done.
switch:admin> configShow route
route.delayRoute:0
route.embeddedPortBase:1
route.stickyRoutes:0
```

## See Also

[configShow](#)  
[interfaceShow](#)  
[urouteRemove](#)  
[urouteShow](#)

## urouteRemove

Removes a static route.

### Synopsis

```
uRouteRemove InArea Domain
```

### Availability

admin

### Description

Use this command to remove a previously configured static route.

After this command is issued, the route to `Domain` for `InArea` might or might not change. It changes if the previous static route was not along a minimum cost path. Also, after this command is issued, the load sharing to `Domain` is re-evaluated.

`InArea` can be either an `F_Port` or an `E_Port`.

### Operands

This command has the following operands:

<code>InArea</code>	The port that is statically routed. This operand is required.
<code>Domain</code>	The destination domain. This operand is required.

### Example

To remove a static route for all traffic coming in from port 1 and addressed to domain 2:

```
switch:admin> uRouteRemove 1 2
done.
```

### See Also

[configShow](#)  
[uRouteConfig](#)  
[urouteShow](#)



**urouteShow**

Displays unicast routing information.

**Synopsis**

```
uRouteShow [slotnumber/][portnumber][, domainnumber]
```

**Availability**

all users

**Description**

Use this command to display the unicast routing information for a port, as it is known by the FSPF path selection and routing task. The routing information describes how a frame that is received from a port on the local switch is to be routed to reach a destination switch.

When no operand is specified, this command displays the routing information for all the active ports on the local switch, to all the domains in the fabric.

When only slot number and port number are specified, this command displays the routing information for the specified port to all the domains connected to it.

When slot number, port number, and domain number are all specified, this command only displays the routing information for the specified port to the specified domain.

The following information displays:

Local Domain ID:	Domain number of local switch.
In Port:	Port from which a frame is received.
Domain:	Destination domain of incoming frame.
Out Port:	Port to which the incoming frame is to be forwarded.
Metric:	Cost of reaching the destination domain.
Hops:	Maximum number of hops required to reach the destination domain.
Flags:	Indicates if route is dynamic (D) or static (S). A dynamic route is discovered automatically by the FSPF path selection protocol. A static route is assigned using the command <code>uRouteConfig</code> .

Next (Dom, Port) :	Domain and port number of the next hop. These are the domain number and the port number of the switch to which <i>Out Port</i> is connected.
-----------------------	--

The information provided by this command should match what is provided by [portRouteShow](#) and [topologyShow](#).

## Operands

This command has the following operands:

slotnumber	<p>Specify the slot number for a hp StorageWorks Core Switch 2/64 or a SAN Director 2/128. For all other switches this operand is not required. The slot number must be followed by a slash ( / ) and the port number, so that each port is represented by both slot number (1 through 4, or 7 through 10), and port number (0 through 15).</p> <p>The hp StorageWorks Core Switch 2/64 and the SAN Director 2/128 have a total of 1–10 slots. Slot number 5 and 6 are control processor cards, and slot 1 through 4, and 7 through 10, are port cards. On each port card, there are 16 ports counted from the bottom, 0 to 15.</p>
portnumber	<p>Specify a port number. Valid values for port number vary depending on the switch type. This operand is optional.</p>
domainnumber	<p>Displays routing information for the specified domain. This operand is optional. This operand should only be specified when the port number is specified.</p>

If no operand is specified, this command displays routing information for all active ports on the local switch, to all the domains in the fabric.

Example

The first example displays the routing information of all the active ports, the second command displays the routing information of port 11 on slot 1, and the third command displays the routing information of port 11 to domain 4 only.

```
switch:admin> urouteshow
Local Domain ID: 3
In Port      Domain      Out Port      Metric      Hops      Flags      Next (Dom, Port)
-----
   0          1          11           1000         1          D          1,0
  11          2           0           1500         2          D          4,0
           4           0            500         1          D          4,0
  16          1          27           1000         1          D          1,1
  27          2          16           1500         2          D          4,16
           4           0            500         1          D          4,0

switch:admin> urouteshow 1/11
Local Domain ID: 3
In Port      Domain      Out Port      Metric      Hops      Flags      Next (Dom, Port)
-----
   11          2          16           1500         2          D          4,16
           4          16            500         1          D          4,16

switch:admin> urouteshow 1/11, 4
Local Domain ID: 3
In Port      Domain      Out Port      Metric      Hops      Flags      Next (Dom, Port)
-----
   11          4          16            500         1          D          4,16
```

See Also

- [portRouteShow](#)
- [topologyShow](#)
- [uRouteConfig](#)
- [urouteRemove](#)

## version

Displays firmware version information.

### Synopsis

version

### Availability

all users

### Description

Use this command to display firmware version information and build dates.

The following is displayed:

Kernel:	Displays the version of switch kernel operating system.
Fabric OS:	Displays the version of switch Fabric OS.
Made on:	Displays the build date of firmware running in switch.
Flash:	Displays the build date of firmware stored in flash PROMs.
BootProm:	Displays the version of the firmware stored in the boot PROM.

Usually the Made on and Flash dates are the same, since the switch starts running flash firmware at power-on. However, in the time period between [firmwareDownload](#) and the next [reboot](#), the dates can differ.

### Operands

none

### Example

To display the firmware version information on a SAN Switch 2/32:

```
switch:admin> version
Kernel:      2.4.19
Fabric OS:   V4.1.0
Made on:     Mon Oct 7 08:27:16 2002
Flash:       Tue Oct 8 12:13:47 2002
BootProm:    3.1.18
```

**See Also**

[firmwareDownload](#)

[reboot](#)

**wwn**

Displays a switch World Wide Name (WWN).

**Synopsis**

wwn

**Availability**

factory or root only (set)

all users (display)

**Description**

Use this command to modify or display the WWN of a switch. All switches have a numeric address that is the unique fibre channel address used for communicating with the switch. The wwn is shown in the output of the [switchShow](#) command.

This command with no parameters displays the current WWN value.

This command with a parameter sets the switch's WWN to the new value. WWN names must have eight colon-separated fields each consisting of 1 or 2 hexadecimal digits between 0 and ff, with no spaces.

After the world wide name is changed, the user is prompted to reboot the switch. The name will not take effect until the switch restarts.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

**Operands**

none

**Example**

To display the switch WWN:

```
switch:admin> wwn  
10:00:00:60:69:00:54:e9
```

**See Also**

[switchShow](#)

## zoneAdd

Adds a member to the zone.

### Synopsis

```
zoneAdd "zoneName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to add one or more members to an existing zone.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---



## Operands

The following operands are required:

<i>zoneName</i>	Specify the name of an existing zone, in quotation marks. This operand is required.
<i>member</i>	<p>Specify a member or list of members to be added, in quotation marks, separated by semicolons. Valid values can be one or more of the following:</p> <ul style="list-style-type: none"><li>■ A switch domain and port area number pair. For example, "2, 20." View the area numbers for ports using the <code>switchShow</code> command.</li><li>■ Node or port WWN.</li><li>■ QuickLoop AL_PA.</li><li>■ Zone alias name.</li></ul>

## Example

To add aliases for three disk arrays to "Blue\_zone:"

```
switch:admin> zoneAdd "Blue_Zone", "array3; array4; array5"
```

## See Also

[zoneCreate](#)  
[zoneDelete](#)  
[zoneRemove](#)  
[zoneShow](#)

## zoneCreate

Creates a zone.

### Synopsis

```
zonecreate "zonename", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to create a new zone.

A zone name is a C-style name beginning with a letter and followed by any number of letters, digits, and underscore characters. Names are case sensitive; for example, “Zone\_1” indicates a different zone than “zone\_1”. Spaces are ignored. Zone names are limited to 64 characters.

The zone member list must have at least one member (empty lists are not allowed). The members are described by a list of member definitions separated by semicolons.

Specify ports by domain and port area number. The values are entered as a pair of numbers “s,p” where “s” is the switch number (domain ID) and “p” is the port area number. For example,

“2, 20” specifies port area number 20 on switch domain 2. When a zone member is specified by port area number, then all devices connected to that port are in the zone. If this port is an arbitrated loop, then all devices on the loop are in the zone.

Specify a World Wide Name as eight hex numbers separated by colons, for example “10:00:00:60:69:00:00:8a.” Zoning compares the WWN with the node and port names presented by a device in a login frame (FLOGI or PLOGI). When a zone member is specified by node name, then all ports on that device are in the zone. When a zone member is specified by port name, then only that single device port is in the zone.

Specify a *QuickLoop AL\_PA* as a QuickLoop name followed by a list of AL\_PAs, for example “qloop1[01,02]”. QuickLoop names have the same format as zone names, and are created with the `qloopCreate` command to define a switch or pair of switches that form the QuickLoop.

Specify a zone alias name using the same format as a zone name. It is created with the `aliCreate` command. The alias must resolve to a list of one or more of the following:

- A switch domain and port area number pair. View the area numbers for ports using the `switchShow` command.
- World Wide Names
- QuickLoop AL\_PAs

The types of zone members used to define a zone might be mixed. For example, a zone defined with the following members: “2,12; 2,14; 10:00:00:60:69:00:00:8a” would contain all devices connected to switch 2, ports 12 and 14, and to the device with the World Wide Name “10:00:00:60:69:00:00:8a” (either node name or port name), at the port in the fabric to which it is connected.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the `cfgSave` command. For the change to become effective, an appropriate zone configuration must be enabled using the `cfgEnable` command.

---

**Note:** Use this command to create a “broadcast” zone. This is a special zone used to specify those nodes that can receive broadcast traffic. Broadcast traffic is usually meant for servers and not for storage devices. This zone must be named “broadcast”. Only one “broadcast” zone can exist within a fabric. This type of zone is hardware enforced; the switch controls data transfer to a port.

When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

The following operands are required:

zoneName	Name for a zone to be created, in quotation marks. This name cannot be used for any other zone object. Zone names are limited to 64 characters.
----------	---

member

List of members to be included in zone, in quotation marks, separated by semicolons. Can be one or more of the following:

- A switch domain and port area number pair. For example, "2, 20" View the area numbers for ports using the `switchShow` command.
- World Wide Names
- QuickLoop AL\_PAs
- Zone alias names

## Examples

To create three zones using a combination of port numbers and zone aliases:

```
switch:admin> zoneCreate "Red_zone", "1,0; loop1"  
switch:admin> zoneCreate "Blue_zone", "1,1; array1; 1,2; array2"  
switch:admin> zoneCreate "Green_zone", "1,0; loop1; 1,2; array2"
```

## See Also

[zoneAdd](#)

[zoneDelete](#)

[zoneRemove](#)

[zoneShow](#)

## zoneDelete

Deletes a zone.

### Synopsis

```
zoneDelete "zoneName"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to delete a zone.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

### Operands

This command has the following operand:

zoneName	Name of the zone to be deleted, in quotation marks. This operand is required.
----------	---

### Example

To delete the zone "Blue\_zone:"

```
switch:admin> zoneDelete "Blue_zone"
```

## See Also

[zoneAdd](#)  
[zoneCreate](#)  
[zoneRemove](#)  
[zoneShow](#)

**zoneHelp**

Displays help information for zone commands.

**Synopsis**

zoneHelp

**Availability**

all users

**Description**

Use this command to display help information for zone commands.

**Operands**

none

## Example

To display zone command help information:

```
switch:admin> zonehelp

aliAdd          Add a member to a zone alias
aliCreate       Create a zone alias
aliDelete       Delete a zone alias
aliRemove       Remove a member from a zone alias
aliShow         Print zone alias information

cfgAdd          Add a member to a configuration
cfgCreate       Create a zone configuration
cfgDelete       Delete a zone configuration
cfgRemove       Remove a member from a configuration
cfgShow         Print zone configuration information

gloopAdd        Add a member to a gloop
gloopCreate     Create a gloop
gloopDelete     Delete a gloop
gloopRemove     Remove a member from a gloop
gloopShow       Print gloop information

zoneAdd         Add a member to a zone
zoneCreate      Create a zone
zoneDelete      Delete a zone
zoneRemove      Remove a member from a zone
zoneShow        Print zone information

fazoneAdd       Add a member to a fabric assist zone
fazoneCreate    Create a fabric assist zone
fazoneDelete    Delete a fabric assist zone
fazoneRemove    Remove a member from a fabric assist zone
fazoneShow      Print Fabric Assist Zone information

cfgClear        Clear all zone configurations
cfgDisable      Disable a zone configuration
cfgEnable       Enable a zone configuration
cfgSave         Save zone configurations in flash

cfgSize         Print size details of zone database
cfgTransAbort   Abort zone configuration transaction
cfgTransShow    Print zone configurations in transaction buffer
```



## zoneRemove

Removes a member from a zone.

### Synopsis

```
zoneRemove "zoneName", "member;member"
```

### Availability

admin

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to remove one or more members from an existing zone.

The member list is located by an exact string match, therefore, it is important to maintain the order when removing multiple members. For example, if a zone contains “array2; array3; array4,” removing “array3; array4” succeeds. but removing “array4; array3” fails.

If all members are removed, the zone is deleted.

This command changes the defined configuration. For the change to be preserved across switch reboots, it must be saved to nonvolatile memory using the [cfgSave](#) command. For the change to become effective, an appropriate zone configuration must be enabled using the [cfgEnable](#) command.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

The following operands are required:

<i>zoneName</i>	Name of the zone, in quotation marks.
<i>member</i>	List of members to be removed from zone, in quotation marks, separated by semicolons. Can be one or more of the following: <ul style="list-style-type: none"><li>■ A switch domain and port area number pair. For example, enter "2, 20" to view the area numbers for ports using the <code>switchShow</code> command.</li><li>■ World Wide Names</li><li>■ QuickLoop AL_PAs</li><li>■ Zone alias names</li></ul>

## Example

To remove "array2" from "Blue\_zone:"

```
switch:admin> zoneRemove "Blue_zone", "array2"  
switch:admin> zoneRemove "Blue_zone", "2,20"
```

## See Also

[zoneAdd](#)  
[zoneCreate](#)  
[zoneDelete](#)  
[zoneShow](#)

## zoneShow

Displays zone information.

### Synopsis

```
zoneShow ["pattern"][, mode]
```

### Availability

all users

---

**Note:** This command requires a Zoning license.

---

### Description

Use this command to display zone configuration information.

If no parameters are specified, all zone configuration information (both defined and enabled) is displayed. See [cfgShow](#) for a description of this display.

If a parameter is specified, it is used as a pattern to match zone configuration names, and those that match in the defined configuration are displayed.

---

**Note:** When security mode is enabled, this command can be issued only from the primary FCS switch.

---

## Operands

The following operands are optional:

<i>pattern</i>	<p>A POSIX style regular expression used to match zone configuration names. The pattern must be enclosed in quotation marks. Patterns may contain:</p> <ul style="list-style-type: none"><li>■ Question mark <code>"?"</code> that matches any single character</li><li>■ Asterisk <code>"**"</code> that matches any string of characters</li><li>■ Ranges <code>"[0-9a-f]"</code> that match any character within the range</li></ul>
<i>mode</i>	<p>Specify 0 to display the contents of the transaction buffer (the contents of the current transaction), or specify 1 to display the contents of the non-volatile memory. The default value is 0.</p>

## Example

To display all zones beginning with the letters "A" through "C:"

```
switch:admin> zoneShow "[A-C]*"  
zone: Blue_zone 1,1; array1; 1,2; array2
```

## See Also

[zoneAdd](#)  
[zoneCreate](#)  
[zoneDelete](#)  
[zoneRemove](#)

# Licensed Product Commands

## 2

This chapter summarizes the commands that are only available with a license key.

- [Advanced Zoning Commands](#), page 814
- [Extended Fabrics Command](#), page 815
- [Fabric Watch Commands](#), page 816
- [ISL Trunking Commands](#), page 817
- [Advanced Performance Monitoring Commands](#), page 818
- [Secure Fabric OS Commands](#), page 820

---

**Note:** For more information about Zoning, Extended Fabrics, Fabric Watch, Trunking, or Performance Monitoring, see the specific user guide for that feature.

---

## Advanced Zoning Commands

The following commands are available with the purchase of an Advanced Zoning license key. For detailed information about zoning, see the *hp StorageWorks Fabric OS 4.2.x Features Guide*.

**Table 16: Zoning Commands**

Command	Description
<b>Zone Alias</b>	
aliAdd	Add a member to a zone alias.
aliCreate	Create a zone alias.
aliDelete	Delete a zone alias.
aliRemove	Remove a member from a zone alias.
<b>Zoning</b>	
zoneAdd	Add a member to a zone.
zoneCreate	Create a zone.
zoneDelete	Delete a zone.
zoneRemove	Remove a member from a zone.
<b>Zone Configuration</b>	
cfgAdd	Add a zone to a zone configuration.
cfgCreate	Create a zone configuration.
cfgDelete	Delete a zone configuration.
cfgRemove	Remove a zone from a zone configuration.
<b>Zone Management</b>	
cfgClear	Clear all zone configurations.
cfgDisable	Disable a zone configuration.
cfgEnable	Enable a zone configuration.
cfgSave	Save zone configurations in flash memory.
cfgTransAbort	Aborts the current zoning transaction.

## Extended Fabrics Command

The following commands are available with the purchase of an Extended Fabrics license key. For detailed information about Extended Fabrics ,see the *hp StorageWorks Fabric OS 4.2.x Features Guide*.

**Table 17: Extended Fabric Command**

Command	Description
portCfgLongDistance	Configure a port to support long-distance links.

## Fabric Watch Commands

The following commands are available with the purchase of a Fabric Watch license key. For detailed information about Fabric Watch, see the *hp StorageWorks Fabric Watch 4.2.x User Guide*.

**Table 18: Fabric Watch Commands**

Command	Description
fwClassInit	Initialize all classes under Fabric Watch.
fwConfigReload	Reload the Fabric Watch configuration.
fwConfigure	Display and enable modification of the Fabric Watch configuration and status.
fwShow	Display the thresholds monitored by Fabric Watch.
fwAlarmsFilterSet	Enable or disable alarms for Fabric Watch.
fwAlarmsFilterShow	Display alarm filtering for Fabric Watch.
fwFruCfg	Display and change FRU state alert configuration.
fwMailCfg	Configure email alerts in Fabric Watch.
fwSetToDefault	Set boundary and alarm levels to the default values.
fwSetToCustom	Set boundary and alarm levels to custom values.



## ISL Trunking Commands

The following commands are available with the purchase of a Trunking license key. For more detailed information about trunking, see the *hp StorageWorks Fabric OS 4.2.x Features Guide*.

**Table 19: Trunking Commands**

Command	Description
portCfgTrunkport	Configure a port for trunking.
switchCfgTrunk	Configure a switch for trunking.
trunkDebug	Debug a trunk link failure.

## Advanced Performance Monitoring Commands

The following commands are available with the purchase of an Advanced Performance Monitoring license key. For more detailed information about Performance Monitoring, see the *hp StorageWorks Fabric OS 4.2.x Features Guide*.

**Table 20: Performance Monitoring Commands**

Command	Description
<code>perfAddEEMonitor</code>	Add an end-to-end monitor to a port.
<code>perfAddIPMonitor</code>	Add an IP monitor to a port.
<code>perfAddReadMonitor</code>	Add a SCSI Read monitor to a port.
<code>perfAddRWMonitor</code>	Add a SCSI Read and Write monitor to a port.
<code>perfAddSCSIMonitor</code>	Add a SCSI traffic frame monitor to a port.
<code>perfAddUserMonitor</code>	Add a user-defined monitor to a port.
<code>perfAddWriteMonitor</code>	Add a SCSI Write monitor to a port.
<code>perfCfgClear</code>	Clear the performance monitoring settings from flash memory.
<code>perfCfgRestore</code>	Restore performance monitoring settings from flash memory.
<code>perfCfgSave</code>	Save the current performance monitoring settings to flash memory.
<code>perfClearEEMonitor</code>	Clear statistics counters of an (EE) end- to-end monitor on a port.
<code>perfClearFilterMonitor</code>	Clear statistics counters of a filter-based monitor.
<code>perfClrAlpaCrc</code>	Clear an AL_PA device CRC count by the port and AL_PA.
<code>perfDeleEEMonitor</code>	Delete an end-to-end monitor on port.
<code>perfDelFilterMonitor</code>	Delete a filter-based monitor.
<code>perfSetPortEEMask</code>	Set overall mask for end-to-end (EE) monitors.
<code>perfShowAlpaCrc</code>	Display the AL_PA CRC count by port or by AL_PA.

**Table 20: Performance Monitoring Commands (Continued)**

Command	Description
perfShowEEMonitor	Display user-defined end-to-end monitors on a port.
perfShowFilterMonitor	Display filter-based monitors for a port.
perfShowPortEEMask	Display the current end-to-end mask of a port.

## Secure Fabric OS Commands

The following commands are available with the purchase of a Security license key. For more detailed information about trunking, see the *hp StorageWorks Secure Fabric OS 4.2.x User Guide*.

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**Note:** Security commands are present only if you purchase and install the optional security license.

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**Table 21: Secure Fabric OS Commands**

Command	Description
secFabricShow	Displays security related fabric information.
secFcsFailover	Enables a Backup FCS switch to take over as Primary FCS switch.
secHelp	Display information about security telnet commands.
secModeEnable	Enable security mode.
secModeDisable	Disable security mode.
secModeShow	Display if security mode is enabled or disabled.
secNonFcsPasswd	Set the admin password for non-FCS switches.
secPolicyAbort	Aborts all changes to the defined database that have not been saved.
secPolicyActivate	Apply defined policy set to all switches in the fabric.
secPolicyAdd	Add members to an existing policy.
secPolicyCreate	Create a new policy.
secPolicyDelete	Delete an existing policy.
secPolicyDump	Show all members of existing policies.
secPolicyFcsMove	Move a member in the FCS policy.
secPolicyRemove	Remove members from an existing policy.
secPolicySave	Save a defined security policy to flash memory on all switches in the fabric.

**Table 21: Secure Fabric OS Commands (Continued)**

Command	Description
secPolicyShow	Show an existing security policy.
secStatsReset	Reset security statistic for a policy or all policies to zero.
secStatsShow	Display security statistic for a policy or for all policies.
secTempPasswdReset	Reset a password on a remote switch.
secTempPasswdSet	Set a temporary password on a remote switch.
secTransAbort	Abort current security transaction.
secVersionReset	Reset the version stamp to zero.



# Commands Unique to Fabric OS v4.2.x

## 3

This chapter summarizes the commands that are unique to one or the other versions of the Fabric OS.

- [Command and Fabric OS Versions](#), page 824

## Command and Fabric OS Versions

The following commands are found either in v3.1.x or v4.2.x but not both.

**Table 22: Fabric OS Command Comparison (Sheet 1 of 5)**

Command	Supported only in V3.1.x	Supported only in V4.2.x
aliasdelete	Yes	No
aliasjoin	Yes	No
aliaspurge	Yes	No
aliasshow	Yes	No
backplaneTest	No	Yes
backport	No	Yes
backspace	Yes	No
bladeBeacon	No	Yes
bladeDisable	No	Yes
bladeEnable	No	Yes
bladePropShow	No	Yes
bsn	Yes	No
chassisName	No	Yes
chassisShow	No	Yes
chipPropShow	No	Yes
chipRegShow	No	Yes
diagCommandShow	No	Yes
diagEsdPorts	No	Yes
diagFailLimi	No	Yes
diagLoopId	No	Yes
diagModePr	No	Yes
diagPost	No	Yes
diagRetry	No	Yes
diagShowTime	No	Yes
diagSilkworm	No	Yes
errSaveLvlSet	No	Yes



**Table 22: Fabric OS Command Comparison (Sheet 2 of 5)**

Command	Supported only in V3.1.x	Supported only in V4.2.x
errSaveLvlShow	No	Yes
errNvLogSizeSet	No	Yes
errNvLogSizeSet	No	Yes
errNvLogSizeShow	No	Yes
fabPortShow	No	Yes
fabStateClear	No	Yes
favStateShow	No	Yes
fabSwitchShow	No	Yes
fanDisable	No	Yes
fanEnable	No	Yes
fashow	Yes	No
fastatsshow	No	Yes
ficonClear	No	Yes
ficonHelp	No	Yes
ficonShow	No	Yes
firmwareCommit	No	Yes
firmwareRestore	No	Yes
fruReplace	No	Yes
fwFruCfg	No	Yes
gbicshow	Yes	No
haDisable	No	Yes
haDump	No	Yes
haEnable	No	Yes
haFailover	No	Yes
haShow	No	Yes
haSyncStart	No	Yes
haSyncStop	No	Yes
historyLastSave	No	Yes

**Table 22: Fabric OS Command Comparison (Sheet 3 of 5)**

Command	Supported only in V3.1.x	Supported only in V4.2.x
historyMode	No	Yes
historyShow	No	Yes
ifshow	Yes	No
itemList	No	Yes
killTelnet	No	Yes
licenseIDShow	No	Yes
mcastshow	Yes	No
myId	No	Yes
paritycheck	Yes	No
pdShow	No	Yes
pkiCreate	No	Yes
pkiRemove	No	Yes
pkiShow	No	Yes
portcamshow	Yes	No
portLogEventShow	No	Yes
portLogReset	No	Yes
portLogResize	No	Yes
portLogTypeDisable	No	Yes
portLogTypeEnable	No	Yes
portStats64Show	No	Yes
portSwap	No	Yes
portSwapDisable	No	Yes
portSwapEnable	No	Yes
portSwapShow	No	Yes
powerOffListSet	No	Yes
powerOffListShow	No	Yes
ptDataShow	No	Yes
ptPhantomShow	No	Yes

**Table 22: Fabric OS Command Comparison (Sheet 4 of 5)**

Command	Supported only in V3.1.x	Supported only in V4.2.x
ptPropShow	No	Yes
ptRegShow	No	Yes
ptRouteShow	No	Yes
ptStatsShow	No	Yes
qldisable	Yes	No
qlenable	Yes	No
qlpartner	Yes	No
qlportdisable	Yes	No
qlportenable	Yes	No
qlportshowall	Yes	No
qlshow	Yes	No
qlstatsshow	Yes	No
quietmode	Yes	No
ramtest	Yes	No
saveCore	No	Yes
setErrLvl	No	Yes
setEsdMode	No	Yes
slotOff	No	Yes
slotOn	No	Yes
slotPowerOff	No	Yes
slotPowerOn	No	Yes
slotShow	No	Yes
ssn	Yes	No
switchDisable	No	Yes
switchReboot	No	Yes
switchShutdown	No	Yes

**Table 22: Fabric OS Command Comparison (Sheet 5 of 5)**

Command	Supported only in V3.1.x	Supported only in V4.2.x
switchStart	No	Yes
switchUptime	No	Yes
systemVerification	No	Yes

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**Note:** Although referenced in this guide, HP does not support FICON at this time.

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# Fabric and Switch Management

## 4

This chapter explains the different methods used to manage a SAN and hp StorageWorks switches. The following information is discussed:

- [Overview of Switch Management](#), page 830
- [Fabric Management Recommendations](#), page 831
- [Overview of the High Availability Feature](#), page 832
- [User Access Level](#), page 835
- [Fabric OS Command Line Interface](#), page 836
- [Web Tools](#), page 837
- [Fabric Manager](#), page 838
- [Fabric Watch](#), page 840
- [Fabric OS Access Layer \(API\)](#), page 841
- [Management Server](#), page 842

## Overview of Switch Management

hp StorageWorks switches can be managed using several local and remote access methods. To manage a switch, you must have access to one of the following available management methods:

- Fabric OS command line interface
- Web Tools
- Fabric Manager
- Fabric Watch
- Fabric OS Access Layer (API)
- Management Server

Telnet, SNMP, and Advanced Web Tools require that the switch be accessible using a network connection. The network connection can be from the switch Ethernet port (out of band) or from Fibre Channel (in band). The switch must be configured with an IP address to allow for the network connection. See the hardware manual for your specific switch for information on physically connecting to the switch.

## Fabric Management Recommendations

Following are some recommendations for managing switches and fabrics:

- When managing a mixed fabric, that is a fabric containing v4.x, v3.x and v2.x switches, we recommend that you use the latest supported version of the firmware to control the fabric.
- Switches can be accessed simultaneously from different connections (for example, Web Tools, CLI, and API). If this happens, changes from one connection might not be updated to the other, and some modifications might be lost. Make sure when connecting with simultaneous multiple connections, that you do not overwrite the work of another connection.
- A number of management tasks (whether executed from the CLI, Web Tools or other management interfaces) are designed to make fabric level changes, for example the zoning commands. When executing fabric level configuration tasks, make sure to allow time for the changes to propagate across the fabric before executing any sequential tasks. For a large fabric, this might be up to a few minutes.
- In this book, commands are shown in mixed-case notation; however, lowercase is recommended. This is because the Fabric OS v4.x, unlike previous versions of the Fabric OS is case sensitive. For backward compatibility, you can enter the commands using the legacy mixed-case notation (for example, [setGbicMode](#)). Lowercase works on both v3.1 and v4.1.
- Prior to initiating an [haFailover](#), make sure that any previously executed commands have completed. It maybe necessary to reissue the command again if it has failed, wholly or partially, due to the failover.

## Overview of the High Availability Feature

This section provides information on the High Availability (HA) feature.

### Core Switch 2/64 and SAN Director 2/128 HA Features

The Core Switch 2/64 and SAN Director 2/128 switches deliver a number of HA features, including:

- Redundant AC cables
- Redundant, hot swappable power supplies
- Redundant, hot swappable fans
- Hot swap of port blades
- Hot swap of control processor (CP) blades
- Hot swap of WWN card
- Nondisruptive failover of control processor blades
- Background health monitor and automatic failover in case of active CP failure
- Non-disruptive firmware download (external server to flash)
- Non-disruptive code activation

The HA feature operates on dual CPs of the Core Switch 2/64 and SAN Director 2/128 in an active CP/standby CP model.

A key part of the HA feature is a software component known as the HA Manager. The HA Manager replicates essential information between the active and standby CPs. The information is actually replicated before it is recorded in the active CP. This means that the standby CP maintains the same state settings in real-time as the active CP. The moment the standby CP needs to take over operation of a switch, it is essentially in the same state as the active CP, and can seamlessly take over control of the switch. This enables nondisruptive failover and code activation on the Core Switch 2/64 and SAN Director 2/128.

The result is that during a failover or code activation event, there is no effect whatsoever on the flow of data between logged in hosts and storage devices. Read and write tasks proceed with no delay or interruption whatsoever. No frames are dropped. No devices that are currently logged in have to re-login.

The HA Manager uses "take-away" model for changing control of the active CP to the standby CP. The Active CP is not relied upon to discover that something is wrong and "give-away" control. Rather, the HA manager on the standby CP



includes mechanisms to detect a failure in the active CP. This enables the switch to seamlessly continue processing (on the standby CP) in the event of active CP failure.

During a failover event, some delay will be observed in response to requests for fabric services, such as queries to the name server, bringing up of new links (whether ISLs or edge devices), or processing of fabric login (FLOGI) requests. This delay is in the range of 5 to 10 seconds.

Note that these values are substantially less than the limit imposed by Fibre Channel standards, which indicate that the switch must respond in less than twice the Resource Allocation Time Out Value (R\_A\_TOV). This should primarily affect those hosts whose state is in the process of changing, for example mounting a device.

## **SAN Switch 2/8V, SAN Switch 2/16V, and SAN Switch 2/32 HA Features**

The SAN Switch 2/8V, SAN Switch 2/16V, and SAN Switch 2/32 delivers a number of HA features, including:

- Redundant AC cables (SAN Switch 2/16V and SAN Switch 2/32 switches)
- Redundant, hot swappable power supplies (SAN Switch 2/32 switches only)
- Redundant, hot swappable fans (SAN Switch 2/32 switches only)
- Nondisruptive firmware download (external server to flash)
- Nondisruptive code activation

The same mechanisms used to provide nondisruptive failover on the Core Switch 2/64 and SAN Director 2/128 are used to perform nondisruptive reboots, and code activation on the SAN Switch 2/8V, SAN Switch 2/16V, and SAN Switch 2/32.

The service running on the SAN Switch 2/8V, SAN Switch 2/16V, and SAN Switch 2/32 is a normal active CP instance image, however, since there is no standby CP, state updates are not maintained.

When a reboot or code activation process is initiated, a reboot management utility is launched. This program creates a standby image of the current switch state. The reboot management program then initiates a synchronization, causing all components of the active image to replicate to the standby image. As the state updates are synchronized, messages are saved in flash.

When all components have finished the synchronization, the active image is disengaged and the actual reboot or code activation operation occurs. Control of the switch is passed seamlessly to the standby image.

The result is that during a reboot or code activation event, there is no effect whatsoever on the flow of data between logged in hosts and storage devices. Read and write tasks proceed with no delay or interruption whatsoever. No frames are dropped. No devices that are currently logged in have to relogin.

## User Access Level

There are four levels of user access for the hp StorageWorks switch:

- root
- factory
- admin
- user

Not all commands are available to all accounts. Commands are assigned a minimum login level to execute. Root level has all access to commands; user level has limited access to commands.

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**Note:** The admin account provides all the commands needed to manage and configure a switch or fabric. The admin account is the recommended login level.

---

In Fabric OS v3.x and earlier, multiple user access to a switch is limited. Each switch enables only a single session per management access method, regardless of user level. Switches can, however, be accessed simultaneously from different connections (for example, through the CLI and Web Tools). If this happens, changes from one connection might not be updated to the other, and some changes might be lost. Make sure when connecting with simultaneous multiple connections, that you do not overwrite the work of another connection.

In Fabric OS v4.2.x, each user access level can have the following number of simultaneous logins:

**Table 23: StorageWorks Core Switch 2/64 User Access Maximum Sessions**

User Name	Maximum Number of Simultaneous Sessions
Root	4
Factory	4
Admin	2
User	4

## Fabric OS Command Line Interface

The Fabric OS command line interface (CLI) accessed through telnet or serial console provides the user with the full range of management capability on a hp StorageWorks switch. The Fabric OS CLI enables an administrator to monitor and manage entire fabrics, individual switches, and ports from a standard workstation. The entire suite of Fabric OS features and capabilities is available across an entire fabric, from a single access point.

Access is controlled by a switch-level password for each user level (factory, root, admin, user). The commands available through the CLI are based on the user's login level, and the license keys used to unlock certain features.

Generally speaking, all configuration and management tasks are available using the admin or user level ID. The root and factory levels should be used with caution. This manual lists all the commands available to the User and Admin level login IDs.

Fabric OS CLI is the complete fabric management tool for SANs and provides the following advantages to administrators:

- Access to the full range of Fabric OS features, based on which license keys you purchase.
- A full set of tools to assist administrators with the configuration, monitoring, dynamic provisioning, and daily management of every aspect of Storage Area Networks.
- Provides a deeper view of the tasks involved with managing a hp StorageWorks switch.
- Configure and manage the fabric on multiple efficient levels.
- Identify, isolate and manage SAN events across every switch in the fabric.
- Manage switch licenses.
- Perform Fabric Stamping.

## Web Tools

Web Tools provides a graphical interface that enables the administrator to monitor and manage entire fabrics and individual switches and ports from a standard workstation. It is an optionally licensed product that runs on Fabric OS. All switches in the fabric are displayed in the main window of Web Tools, including switches that do not have a Web Tools license. However, only switches that have a Web Tools license installed can be managed through Web Tools (other switches must be managed through Telnet).

Web Tools is an excellent partner to the traditional Fabric OS CLI commands, and in many ways can provide faster and more effective results than can be achieved strictly through the CLI. Following are some of the features that make Web Tools an important part of the switch management and administration process:

- Web Tools can be used simultaneously with Fabric OS CLI commands. Simply open a second window and you can take advantage of the benefits of both interfaces at the same time.
- Web Tools can help you find the appropriate Fabric OS CLI command to perform a desired function. For instance, you can perform a function using Web Tools and watch in a second window as the Fabric OS CLI commands are displayed.
- Web Tools can be used from a standard workstation and provides the user the advantage of being “virtually” in front of any fabric, switch, or port.
- Web Tools makes zoning a simple “click and drag” process, rather than having to tediously type out IP addresses and port numbers to add a configuration.
- Web Tools provides the “Performance Monitor” feature. This feature enables you to view the status and traffic of a switch or port in seconds by easily creating a variety of effective graphs.
- Web Tools is easy and intuitive to use.

## Fabric Manager

Fabric Manager provides a graphical interface that enables the administrator to monitor and manage an entire fabric from a standard workstation. Fabric Manager can be used to manage fabrics containing integrated Fabrics, in addition to individual hp StorageWorks switches. Fabric Manager provides high-level information about all switches in the fabric, launching the Web Tools application when more detailed information is required. The launching of Web Tools is transparent, providing a seamless user interface. In addition to the ability to view the switches as a group, Fabric Manager provides improved performance over Web Tools alone. Fabric Manager is installed on the workstation, and can be used to manage any hp StorageWorks switches that have Fabric OS v2.2 or later and Web Tools v2.2 or later installed. All switches in the fabric are represented in the main window of Fabric Manager, but only those with a Web Tools license can be managed through Fabric Manager.

Fabric Manager is the complete SAN management power tool for SANs, and provides the following advantages to administrators:

- Provides a highly scalable Java-based application that manages multiple switches and multiple fabrics (up to eight) in real-time.
- Assists SAN administrators with the configuration, monitoring, dynamic provisioning, and daily management of Storage Area Networks.
- Lowers the cost of SAN ownership by intuitively facilitating SAN management tasks.
- Saves time by enabling the global integration and execution of processes across multiple fabrics, through its single-point SAN management platform.
- Enables more effective management by providing rapid access to critical SAN information across both Fabric OS SANs and enhanced Fabric OS SANs.
- Configure and manage the fabric on multiple efficient levels.
- Intelligently group multiple SAN objects and SAN management functions to provide ease and time-efficiency in administering tasks.
- Identify, isolate, and manage SAN events across multiple switches and fabrics.
- Provide drill-down capability to individual SAN components through tightly coupled Web Tools and Fabric Watch integration.
- Discover all SAN components and view the real-time state of all fabrics.

- Execute multifabric administration of Secure Fabric OS SANs through a single encrypted console.
- Implement scalable SAN management tasks through functionality and tools that intelligently span 8 fabrics and 200 switches.
- Monitor Inter Switch Links (ISLs)
- Manage switch licenses
- Perform Fabric Stamping

## Fabric Watch

Fabric Watch software monitors the performance and status of Fibre Channel networks and hp StorageWorks switches, and can alert SAN managers when problems arise. The real-time alerts from Fabric Watch software help SAN managers solve problems before they become costly failures. SAN managers can configure Fabric Watch software to monitor any of the following:

- Fabric events (such as topology reconfigurations and zone changes)
- Physical switch conditions (such as fans, power supplies, and temperature)
- Port behavior (such as state changes, errors, and performance)
- SFPs behavior

With Fabric Watch software, SAN managers can place limits, or *thresholds*, on the behavior of different switch and fabric elements. Fabric Watch then monitors these behavior variables, or *counters*, and issues an alarm to address problems when a counter exceeds a threshold. An alarm might email the SAN manager or lock out a port log, depending on how the manager configures the alarm.



## Fabric OS Access Layer (API)

The Fabric OS Access Layer is an application programming interface (API) that enables any application to access critical information about a SAN. With Fabric Access, an application can query or control individual switches or the entire fabric.

The Fabric OS Access Layer has the following advantages:

- Use third-party software to manage a fabric
- Ability to create SAN management applications specific to your needs, using the tools available in the Fabric OS

## Management Server

The Fabric OS includes a distributed management server. The management server allows a storage area network (SAN) management application to retrieve information and administer the fabric and interconnected elements, such as switches, servers, and storage devices. The MS is located at the fibre channel well-known address, FFFFFAh.

The implementation of the management server (MS) provides two management services:

- Fabric Configuration Service - Provides basic configuration management for topology information (referred to as Topology Discovery).
- Unzoned Name Server access - Provides a management view of the name server information for all devices in a fabric, regardless of the active zone set.
- Fabric Zone Service
- FDMI

The services provided by the MS assist in the auto-discovery of switch-based fabrics and their associated topology. A client of the MS can determine basic information regarding the switches that comprise the fabric and use this information to construct topology relationships. In addition, the basic configuration services provided by the management server allow certain attributes associated with switches to be obtained and in some cases, modified. For example, logical names identifying switches might be registered with the management server. For more information see the *hp StorageWorks Fabric OS Procedures User Guide*.

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**Note:** The `msConfigure` command is disabled if the switch is in secure mode. See the *hp StorageWorks Secure Fabric OS 4.2.x User Guide* for more information.

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# Control Processor Commands

## 5

This chapter lists the commands available when logged in to the active CP and standby CP in a Core Switch 2/64 or SAN Director 2/128. The following information is discussed:

- [Commands Supported on the Active CP](#), page 844
- [Commands Supported on the Standby CP](#), page 845

## Commands Supported on the Active CP

When logged in to the active CP on a Core Switch 2/64, you must specify the logical switch number to which you are connecting. This guarantees that any commands you execute are run on the desired logical switch. Once you have selected a logical switch, the full set of commands for your user level are available.

## Commands Supported on the Standby CP

The following commands are supported when logged into the standby CP.

**Table 24: StorageWorks Core Switch Standby CP Commands**

Command	Notes
date	Print/set the system date and time.
errclear	Clear error log.
errDump	Print error log with no page breaks.
errNvLogSizeSet	Resize non-volatile (persistent) error log.
errNvLogSizeShow	Show persistent error log configuration.
errSaveLvlSet	Set error save level.
errSaveLvlShow	Get error save level.
errShow	Print error log (with page breaks).
fastBoot	Reboot switch, bypassing the POST.
firmwareCommit	Commit firmware to stable storage.
firmwareDownload	Download firmware into the switch.
firmwareDownloadStatus	Display the progress and status of <code>firmwareDownload</code> .
firmwareRestore	Restore previous firmware into the switch.
firmwareShow	Display firmware versions in the switch.
h	Display shell history.
haDump	Dump HA debug data.
haShow	Display high availability status.
help	Display help commands available in the standby CP.
ifModeSet	Set the link operating mode for a network interface.
ifModeShow	Display the link operating mode for a network interface.
killTelnet	Terminate telnet/serial login sessions interactively.
memShow	Display memory usage in the system.

**Table 24: StorageWorks Core Switch Standby CP Commands (Continued)**

Command	Notes
myid	Display current login session details.
pdShow	Display information from panic dump file.
reboot	Reboot the standby CP.
saveCore	FTP or Remove core files generated by daemons.
switchName	Print this switch's name.
tsTimeZone	Display the time zone.
upTime	Print how long the switch has been up.
version	Print firmware version.

# Security and Commands



This chapter summarizes the commands that are only available on the primary FCS when the security feature is installed and enabled.

- [Commands Exclusive to the Primary FCS](#), page 848

## Commands Exclusive to the Primary FCS

The following commands are available only on the primary FCS when security is installed and enabled.

**Table 25: Commands Exclusive to the Primary FCS**

Command	Notes
agtcfgset	Can be run on all switches, but it needs to be run on the Primary FCS to modify community strings
agtcfgdefault	Must be run from the Primary FCS switch.
aliAdd	Must be run from the Primary FCS switch.
aliCreate	Must be run from the Primary FCS switch.
aliDelete	Must be run from the Primary FCS switch.
aliRemove	Must be run from the Primary FCS switch.
aliShow	Must be run from the Primary FCS switch.
cfgAdd	Must be run from the Primary FCS switch.
cfgClear	Must be run from the Primary FCS switch.
cfgCreate	Must be run from the Primary FCS switch.
cfgDelete	Must be run from the Primary FCS switch.
cfgDisable	Must be run from the Primary FCS switch.
cfgEnable	Must be run from the Primary FCS switch.
cfgRemove	Must be run from the Primary FCS switch.
cfgSave	Must be run from the Primary FCS switch.
cfgShow	Must be run from the Primary FCS switch.
cfgTransAbort	Must be run from the Primary FCS switch.
cfgTransShow	Must be run from the Primary FCS switch.
date	This command can be run on all switches to view the current date. You can only modify the date from the Primary FCS switch.
faZoneAdd	Must be run from the Primary FCS switch.
faZoneCreate	Must be run from the Primary FCS switch.
faZoneDelete	Must be run from the Primary FCS switch.
faZoneRemove	Must be run from the Primary FCS switch.
faZoneShow	Must be run from the Primary FCS switch.



**Table 25: Commands Exclusive to the Primary FCS (Continued)**

Command	Notes
msConfigure	Must be run from the Primary FCS switch.
msPLMgmtDeactivate	Must be run from the Primary FCS switch.
msPLMgmtActivate	Must be run from the Primary FCS switch.
msPLClearDb	Must be run from the Primary FCS switch.
mstdDisable	mstddisable "ALL" must be run from the Primary FCS switch.
mstdEnable	mstdenable "ALL" must be run from the Primary FCS switch.
passwd	Must be run from the Primary FCS switch.
secFabricShow	Must be run from the Primary FCS switch.
secModeDisable	Must be run from the Primary FCS switch.
secNonFcsPasswd	Must be run from the Primary FCS switch.
secPolicyAbort	Must be run from the Primary FCS switch.
secPolicyActivate	Must be run from the Primary FCS switch.
secPolicyAdd	Must be run from the Primary FCS switch.
secPolicyCreate	Must be run from the Primary FCS switch.
secPolicyDelete	Must be run from the Primary FCS switch.
secPolicyDump	Must be run from the Primary FCS switch.
secPolicyFcsMove	Must be run from the Primary FCS switch.
secPolicyRemove	Must be run from the Primary FCS switch.
secPolicySave	Must be run from the Primary FCS switch.
secPolicyShow	Must be run from the Primary FCS switch.
secTempPasswdSet	Must be run from the Primary FCS switch.
secTempPasswdReset	Must be run from the Primary FCS switch.
secVersionReset	Must be run from the Primary FCS switch. Can also be run on a single non-FCS switch which is segmented from a fabric.
tsClockServer	Must be run from the Primary FCS switch.
wnn	This command can be run on all switches to view the WWN. With security enabled the WWN of a switch cannot be modified.

**Table 25: Commands Exclusive to the Primary FCS (Continued)**

Command	Notes
zoneAdd	Must be run from the Primary FCS switch.
zoneCreate	Must be run from the Primary FCS switch.
zoneDelete	Must be run from the Primary FCS switch.
zoneRemove	Must be run from the Primary FCS switch.
zoneShow	Must be run from the Primary FCS switch.

# supportShow Reference



This chapter explains the information displayed by the [supportShow](#) command. This chapter has the following sections:

- [supportShow Control Commands](#), page 852
- [supportShow Command Groups](#), page 853
- [Proc Entry Information Displayed](#), page 857

## supportShow Control Commands

The [supportShow](#) command is used to display support information by executing groups of preselected Fabric OS and Linux commands. The information displayed by the [supportShow](#) command can be controlled by a set of control commands:

<a href="#">supportShowC fgShow</a>	Display which groups of commands are enabled to display under <a href="#">supportShow</a> .
<a href="#">supportShowC fgEnable</a>	Enable a group of commands to display under <a href="#">supportShow</a> .
<a href="#">supportShowC fgDisable</a>	Disable a group of commands from displaying under <a href="#">supportShow</a> .

## supportShow Command Groups

Table 26 displays the command groups under supportshow, and which Fabric OS or Linux commands are executed by that group.

**Note:** Many of the commands executed by [supportShow](#) are intended for support use only. These commands are not intended for end-users.

**Table 26: supportShow Command Groups**

Command Group	Fabric OS v3.1.x	Fabric OS v4.2.x
os	mqshow i memShow mallocshow fastcheckheap	mii-tool -vv /usr/bin/du -xh /   /bin/sort: /bin/ps -elfh /bin/echo /bin/rpm -qa /bin/cat /var/log/dmesg /bin/cat /etc/fstab /bin/cat /etc/mtab printing proc entries.
exception	faultshow traceshow errDump	errdump -a/-p
port	portShow portregshow portstructshow bloomdatashow portRouteShow portsemshow bloomsemshow semashow 1	diagShow portShow portloginshow portregshow portRouteShow

Table 26: supportShow Command Groups (Continued)

Command Group	Fabric OS v3.1.x	Fabric OS v4.2.x
fabric	fabricShow islshow trunkShow topologyShow fashow qlshow cfgShow fabStatsShow fablogdump	fabricShow islshow trunkShow topologyShow fabStateShow fabswitchshow fabStatsShow fabPortShow fspfShow fcplogshow zone-stateshow portzoneshow portCamShow cfgSize cfgShow rcssmshow rcsinfoShow rcsregistryshow
services	nsShow nsAllShow nscamShow	fdmiCacheShow ficonDbg dump rmid ficonDbg log fabStatsShow ilir fabStatsShow lirr fabStatsShow rlir fabStatsShow rmid fabStatsShow nsShow nsAllShow nscamShow
security	secModeShow secPolicyDump secStatsShow secFabricShow	secModeShow secPolicyDump secStatsShow secFabricShow

Table 26: supportShow Command Groups (Continued)

Command Group	Fabric OS v3.1.x	Fabric OS v4.2.x
network	<a href="#">ipAddrShow</a> <a href="#">ifshow</a> <a href="#">ipstatshow</a> <a href="#">udpstatshow</a> <a href="#">tcpstatshow</a> <a href="#">inetstatshow</a> <a href="#">mbufshow</a> <a href="#">arpshow</a> <a href="#">routeshow</a> <a href="#">routestatshow</a> <a href="#">hostshow</a> <a href="#">feidumpprint</a> <a href="#">i557dump</a> <a href="#">feiiteraterfdrings</a>	<a href="#">/sbin/bootenv</a> <a href="#">/sbin/sin</a> <a href="#">/bin/df</a> <a href="#">/sbin/ifconfig</a> <a href="#">/sbin/route</a> <a href="#">/bin/hostname</a>
portlog	<a href="#">portLogDump</a> (no parameters) <a href="#">portLogDump</a> 0, 1	<a href="#">portLogDump</a>
system	<a href="#">version</a> <a href="#">upTime</a> <a href="#">switchShow</a> <a href="#">tempShow</a> <a href="#">psShow</a> <a href="#">licenseShow</a> <a href="#">diagShow</a> <a href="#">portFlagsShow</a> <a href="#">portErrShow</a> <a href="#">portCfgShow</a> <a href="#">configShow</a>	<a href="#">myld</a> <a href="#">version</a> <a href="#">firmwareShow</a> <a href="#">upTime</a> <a href="#">switchStatusShow</a> <a href="#">switchShow</a> <a href="#">haDump</a> <a href="#">tempShow</a> <a href="#">sensorShow</a> <a href="#">psShow</a> <a href="#">fanShow</a> <a href="#">licenseShow</a> <a href="#">portFlagsShow</a> <a href="#">portCfgShow</a> <a href="#">sfpShow</a> <a href="#">portErrShow</a> <a href="#">twsamshow</a> <a href="#">agtCfgShow</a> <a href="#">slotShow</a> <a href="#">chassisShow</a> <a href="#">switchStatusPolicyShow</a> <a href="#">fwAlarmsFilterShow</a> <a href="#">timeout</a> <a href="#">historyShow</a> <a href="#">configShow</a>

**Table 26: supportShow Command Groups (Continued)**

Command Group	Fabric OS v3.1.x	Fabric OS v4.2.x
extend	bloomlistdisplay bloomfdetshow bloomramdump	ptbufshow ptcreditshow ptDataShow ptPhantomShow ptPropShow ptStatsShow
filter	filtershow	filterportshow
perfmon	ps_dump	ps_dump -a -n port#



## Proc Entry Information Displayed

The `os` command group prints a number of proc entries. [Table 27](#) displays example proc entry information.

**Table 27: Proc Entry Information Displayed**

Proc Display Command	Proc Example Display
/proc/cmdline	/proc/cmdline quiet
/proc/cpuinfo	/proc/cpuinfo cpu : 405GP clock : 200MHz revision : 1.69 (pvr 4011 0145) bogomips : 199.47 machine : HP StorageWorks plb bus clock : 100MHz pci bus clock : 33MHz
/proc/devices	/proc/devices Character devices: 1 mem 2 pty 3 tty 4 ttyS 5 cua 7 vcs 10 misc 89 i2c 90 mtd 128 ptm 136 pts 162 raw 245 swd 246 ham 247 fc 248 fc-switch 249 fabsys 250 fss_kt 251 fss_data 252 fss_mgmt 253 portlog 254 platform Block devices: 1 ramdisk 3 ide0 7 loop

**Table 27: Proc Entry Information Displayed (Continued)**

Proc Display Command	Proc Example Display
/proc/filesystems	/proc/filesystems nodev rootfs nodev bdev nodev proc nodev sockfs nodev tmpfs nodev shm nodev pipefs ext2 nodev ramfs nodev nfs nodev devpts xfs nodev dfs
/proc/interrupts	/proc/interrupts CPU0 0: 0 IBM UIC Level serial 1: 591 IBM UIC Level serial 2: 2696197 IBM UIC Level IBM OCP IIC 10: 0 IBM UIC Level OCP EMAC MAL SERR 11: 1512 IBM UIC Level OCP EMAC TX EOB 12: 343895 IBM UIC Level OCP EMAC RX EOB 13: 0 IBM UIC Level OCP EMAC TX DE 14: 0 IBM UIC Level OCP EMAC RX DE 26: 52017 IBM UIC Level bloom 30: 1060300 IBM UIC Level ide0 FIT: 0 PIT: 15879069 BAD: 0

**Table 27: Proc Entry Information Displayed (Continued)**

Proc Display Command	Proc Example Display
/proc/meminfo	<pre> /proc/meminfo total: used: free: shared: buffers: cached: Mem: 129740800 97079296 32661504 0 118784 45764608 Swap: 0 0 0 MemTotal: 126700 kB MemFree: 31896 kB MemShared: 0 kB Buffers: 116 kB Cached: 44692 kB SwapCached: 0 kB Active: 23464 kB Inactive: 49472 kB HighTotal: 0 kB HighFree: 0 kB LowTotal: 126700 kB LowFree: 31896 kB SwapTotal: 0 kB SwapFree: 0 kB </pre>
/proc/modules	<pre> /proc/modules dubby-module 582614 2 chubby-module 3128618 126 [dubby-module] dfs 5458 1 [dubby-module] consolelog-module 8539 0 (unused) panicdump-module 15279 0 [chubby-module consolelog-module] xfsnotificationhandler 4858 0 (unused) </pre>
/proc/mounts	<pre> /proc/mounts rootfs / rootfs rw 0 0 dev/hda1 / xfs rw,noatime 0 0 /proc /proc proc rw 0 0 none /dev/pts devpts rw 0 0 none /tmp ramfs rw 0 0 /dev/hda2 /mnt xfs rw,noatime 0 0 /diag /diag dfs rw 0 0 </pre>

**Table 27: Proc Entry Information Displayed (Continued)**

Proc Display Command	Proc Example Display
/proc/mtd	<pre> /proc/mtd dev: size erasesize name mtd0: 00010000 00010000 "boot environment" mtd1: 00070000 00010000 "boot prom" mtd2: 01000000 00040000 "Entire user flash" mtd3: 00400000 00040000 "kernel and initrd (1)" mtd4: 00400000 00040000 "kernel and initrd (2)" mtd5: 00400000 00040000 "log data (1)" mtd6: 00400000 00040000 "log data (2)" </pre>
/proc/partitions	<pre> /proc/partitions major minor #blocks name 3 0 250880 hda 3 1 124912 hda1 3 2 124928 hda2 </pre>
/proc/pci	<pre> /proc/pci PCI devices found: Bus 0, device 0, function 0: Host bridge: IBM 405GP PLB to PCI Bridge (rev 1). Master Capable. Latency=7. Prefetchable 32 bit memory at 0x0 [0x7fffffff]. Bus 0, device 4, function 0: IDE interface: CMD Technology Inc PCI0649 (rev 2). IRQ 30. Master Capable. Latency=64. Min Gnt=2.Max Lat=4. I/O at 0x1008 [0x100f]. I/O at 0x1000 [0x1003]. I/O at 0x2000 [0x2007]. I/O at 0x3000 [0x3003]. I/O at 0x4000 [0x400f]. Bus 0, device 6, function 0: Non-VGA unclassified device: HP StorageWorks Bloom switch (rev 0). IRQ 26. --&lt;output truncated&gt;-- </pre>

**Table 27: Proc Entry Information Displayed (Continued)**

Proc Display Command	Proc Example Display
/proc/slabinfo	<pre> /proc/slabinfo slabinfo - version: 1.1 kmem_cache 74 102 112 3 3 1 ip_mrt_cache 0 0 96 0 0 1 tcp_tw_bucket 2 40 96 1 1 1 tcp_bind_bucket 5 113 32 1 1 1 tcp_open_request 0 59 64 0 1 1 inet_peer_cache 1 59 64 1 1 1 ip_fib_hash 11 113 32 1 1 1 ip_dst_cache 65 168 160 7 7 1 arp_cache 2 30 128 1 1 1 blkdev_requests 128 160 96 4 4 1 xfs_chashlist 193 404 16 2 2 1 xfs_ili 2004 5668 152 135 218 1 xfs_ifork 0 0 56 0 0 1 xfs_efi_item 0 12 328 0 1 1 xfs_efd_item 0 12 328 0 1 1 --&lt;output truncated&gt;-- </pre>
/proc/stat	<pre> /proc/stat cpu 184683 47107 88647 15558673 cpu0 184683 47107 88647 15558673 page 54635 71305 swap 0 0 intr 4154525 0 591 2696197 0 0 0 0 0 0 0 1520 343900 0 0 0 0 0 0 0 0 0 0 0 52017 0 0 0 1060300 0 disk_io: (3,0):(61121,5352,115463,55769,944835) ctxt 44089966 btime 1048729603 processes 17684 </pre>

**Table 27: Proc Entry Information Displayed (Continued)**

Proc Display Command	Proc Example Display
/proc/tty/drivers	/proc/tty/drivers serial /dev/cua 5 64-65 serial:callout serial /dev/ttyS 4 64-65 serial pty_slave /dev/pts 136 0-255 pty:slave pty_master /dev/ptm 128 0-255 pty:master pty_slave /dev/ttyp 3 0-255 pty:slave pty_master /dev/pty 2 0-255 pty:master /dev/vc/0 /dev/vc/0 4 0 system:vtmaster /dev/ptmx /dev/ptmx 5 2 system /dev/console /dev/console 5 1 system:console /dev/tty /dev/tty 5 0 system:/dev/tty
/proc/uptime	/proc/uptime 158791.21 155710.77
/proc/version	/proc/version Linux version 2.4.19 (swrel@sierra) (gcc version 2.95.3 20010112 (prerelease)) #1 Wed Mar 26 00:04:35 PST 2003

This glossary defines terms used in this guide or related to this product and is not a comprehensive glossary of computer terms.

**8b/10b encoding**

An encoding scheme that converts each 8-bit byte into 10 bits. Used to balance 1s and 0s in high-speed transports.

**ABTS**

Abort Basic Link Service. Also referred to as “Abort Sequence.”

**ACC**

Accept link service reply. The normal reply to an Extended Link Service request (such as FLOGI), indicating that the request has been completed.

**access fairness**

A process by which contending nodes are guaranteed access to an arbitrated loop.

**ACK**

Acknowledgement frame, used for end-to-end flow control. Verifies receipt of one or more frames from Class 1, 2, or F services.

**active copper**

A Fibre Channel connection that allows copper cabling up to 33 meters (36 yards) between devices.

**address identifier**

A 24-bit or 8-bit value used to identify the source or destination of a frame.

*See also* S\_ID, DID.

**AL\_PA**

Arbitrated loop physical address. A unique 8-bit value assigned during loop initialization to a port in an arbitrated loop.

**AL\_TIME**

Arbitrated loop timeout value. Twice the amount of time it would take for a transmission word to propagate around a worst-case loop. The default value is 15 milliseconds (ms).

**alias**

A logical grouping of elements in a fabric. An alias is a collection of port numbers and connected devices, used to simplify the entry of port numbers and WWNs when creating zones.

**alias address identifier**

An address identifier recognized by a port in addition to its standard identifier. An alias address identifier can be shared by multiple ports.

*See also* [alias](#).

**alias AL\_PA**

An AL\_PA value recognized by an L\_Port in addition to the AL\_PA assigned to the port.

*See also* [AL\\_PA](#).

**alias server**

A fabric software facility that supports multicast group management.

**ANSI**

American National Standards Institute.

**ARB**

Arbitrative primitive signal. Applies only to an arbitrated-loop topology. Transmitted as the fill word by an L\_Port to indicate that the port is arbitrating access to the loop.

**arbitrated loop**

A shared 100-Mb/sec Fibre Channel transport structured as a loop. Can support up to 126 devices and one fabric attachment.

*See also* [topology](#).

**arbitration**

A method of gaining orderly access to a shared-loop topology.

**area number**

In Fabric OS v4.0 and above, ports on a switch are assigned a logical area number. Port area numbers can be viewed by entering the [switchShow](#) command. They are used to define the operative port for many Fabric OS commands: for example, area numbers can be used to define the ports within an alias or zone.

**ARP**

Address Resolution Protocol. A TCP/IP function for associating an IP address with a link-level address.

**ARR**

Asynchronous response router. Refers to Management Server GS\_Subtype Code E4, which appears in [portLogDump](#) command output.



**ASD**

Alias server daemon. Used for managing multicast groups by supporting the create, add, remove, and destroy functions.

**ASIC**

Application-specific integrated circuit.

**ATM**

Asynchronous Transfer Mode. A transport used for transmitting data over LANs or WANs that transmit fixed-length units of data. Provides any-to-any connectivity and allows nodes to transmit simultaneously.

**authentication**

The process of verifying that an entity in a fabric (such as a switch) is what it claims to be.

*See also* [digital certificate](#), [switch-to-switch authentication](#).

**autocommit**

A feature of the [firmwareDownload](#) command. Enabled by default, autocommit commits new firmware to both partitions of a control processor.

**autoreboot**

Refers to the `-b` option of the [firmwareDownload](#) command. Enabled by default.

**AW\_TOV**

Arbitration wait timeout value. The minimum time an arbitrating L\_Port waits for a response before beginning loop initialization.

**backup FCS switch**

Relates to the Secure Fabric OS feature. The backup fabric configuration server serves as a backup in case the primary FCS switch fails.

*See also* [FCS switch](#), [primary FCS switch](#).

**bandwidth**

The total transmission capacity of a cable, link, or system. Usually measured in bps (bits per second). Bandwidth can also refer to the range of transmission frequencies available to a link or system.

*See also* [throughput](#).

**BB\_Credit**

Buffer-to-buffer credit. The number of frames that can be transmitted to a directly connected recipient or within an arbitrated loop. Determined by the number of receive buffers available.

*See also* [buffer-to-buffer flow control](#), [EE\\_Credit](#).

**beacon**

A tool in which all of the port LEDs on a switch are set to flash from one side of the switch to the other, to enable identification of an individual switch in a large fabric. A switch can be set to beacon by a CLI command or through Advanced Web Tools.

**beginning running disparity**

The disparity at the transmitter or receiver when the special character associated with an ordered set is encoded or decoded.

*See also* [disparity](#).

**BER**

Bit error rate. The rate at which bits are expected to be received in error. Expressed as the ratio of error bits to total bits transmitted.

*See also* [error](#).

**BISR**

Built-in self-repair.

**BIST**

Built-in self-test.

**bit synchroniza-tion**

The condition in which a receiver is delivering retimed serial data at the required bit error rate.

**blind-mate connector**

A two-way connector used in some hp StorageWorks switches to provide a connection between the motherboard and the power supply.

**block**

As it applies to Fibre Channel technology, upper-level application data that is transferred in a single sequence.

**boot code**

Software that initialized the system environment during the early phase of the boot-up process. For example, boot code might determine the amount of available memory and how to access it.

**boot flash**

Flash (temporary) memory that stores the boot code and boot.

**bport**

Back-end port of the ASIC.

**broadcast**

The transmission of data from a single source to all devices in the fabric, regardless of zoning.

*See also* [multicast](#), [unicast](#).

**buffer-to-buffer flow control**

Management of the frame transmission rate in either a point-to-point topology or in an arbitrated loop.

*See also* [BB\\_Credit](#).

**bypass circuitry**

Circuits that automatically remove a device from the data path when valid signals are dropped.

**CA**

Certificate authority. A trusted organization that issues digital certificates.

*See also* [digital certificate](#).

**CAM**

Content-addressable memory.

**CAN**

Campus area network. A network comprising a limited area but not just one building.

*See also* [LAN](#), [MAN](#), [WAN](#).

**cascade**

Two or more interconnected Fibre Channel switches. hp StorageWorks 1GB switches and later switches can be cascaded up to 239 switches, with a recommended maximum of seven interswitch links (no path longer than eight switches).

*See also* [fabric](#), [ISL](#).

**CFG**

Configuration.

**CFN**

Change fabric name. Refers to an ELS field that appears in [portLogDump](#) command output.

**chassis**

The metal frame in which the switch and switch components are mounted.

**CIM**

Common Information Model. A management structure enabling disparate resources to be managed by a common application.

**circuit**

An established communication path between two ports. Consists of two virtual circuits capable of transmitting in opposite directions.

**Class 1 service**

The class of frame-switching service for a dedicated connection between two communicating ports (also called "connection-oriented service"). Includes acknowledgement of frame delivery or nondelivery.

**Class 2 service**

A connectionless class of frame-switching service that includes acknowledgement of frame delivery or nondelivery.

**Class 3 service**

A connectionless class of frame-switching service that does not include acknowledgement of frame delivery or nondelivery. Can be used to provide a multicast connection between the frame originator and recipients, with acknowledgement of frame delivery or nondelivery.

**Class 4 service**

A connection-oriented service that allows fractional parts of the bandwidth to be used in a virtual circuit.

**Class 6 service**

A connection-oriented multicast service geared toward video broadcasts between a central server and clients.

**Class F service**

The class of frame-switching service for a direct connection between two switches, allowing communication of control traffic between the E\_Ports. Includes acknowledgement of data delivery or nondelivery.

**class of service**

A specified set of delivery characteristics and attributes for frame delivery.

**CLI**

Command line interface. An interface that depends entirely on the use of commands, such as through telnet or SNMP, and does not involve a GUI.

**client**

An entity that, using its common transport (CT), makes requests of a server.

**CLS**

Close primitive signal. Used only in an arbitrated loop. Sent by an L\_Port that is currently communicating in the loop, to close communication with another L\_Port.

**CM**

Central memory.

**CMA**

Central memory architecture. An architecture centralizing memory usage in switches.

**CMBISR**

Central memory built-in self-repair.

**CMT**

Central memory test.

**comma**

A unique pattern (either 1100000 or 0011111) used in 8B/10B encoding to specify character alignment within a data stream.

*See also* [K28.5](#).

**community (SNMP)**

A relationship between a group of SNMP managers and an SNMP agent, in which authentication, access control, and proxy characteristics are defined.

*See also* [SNMP](#).

**compact flash**

Flash (temporary) memory that is used in a manner similar to hard disk storage. It is connected to a bridging component that connects to the PCI bus of the processor. Not visible within the processor's memory space.

**configuration**

(1) A set of parameters that can be modified to fine-tune the operation of a switch. Use the [configShow](#) command to view the current configuration of your switch.

(2) In Zoning, a zoning element that contains a set of zones. The Configuration is the highest-level zoning element and is used to enable or disable a set of zones on the fabric.

*See also* [zone configuration](#).

**congestion**

The realization of the potential of oversubscription. A congested link is one on which multiple devices are contending for bandwidth.

**connection initiator**

A port that has originated a Class 1 dedicated connection and received a response from the recipient.

**connection recipient**

A port that has received a Class 1 dedicated connection request and transmitted a response to the originator.

**controller**

A computer module that interprets signals between a host and a peripheral device. The controller typically is part of the peripheral device.

**core PID**

Core switch port identifier. The core PID must be set for OS v3.1 and earlier switches included in a fabric of v4.1 switches. This parameter is located in the [configure](#) command of firmware versions v3.1 and earlier. All v4.1 switches and above use the core PID format by default; this parameter is not present in the [configure](#) command for these switches.

**COS**

Class of service.

**CP**

Control processor.

**CPLD**

Complex PLD. Alternately known as “Enhanced PLD (EPLD),” “Super PAL,” and “Mega PAL.”

**CRC**

Cyclic redundancy check. A transmission error check that is included in every data frame.

**credit**

As it applies to Fibre Channel technology, the number of receive buffers available to transmit frames between ports.

*See also* [BB\\_Credit](#), [EE\\_Credit](#).

**cut-through**

A switching technique that allows the route for a frame to be selected as soon as the destination address is received.

*See also* [route](#).

**D\_ID**

Destination identifier. A 3-byte field in the frame header, used to indicate the address identifier of the N\_Port to which the frame is headed

**DAS**

Direct attached storage.

**data word**

A type of transmission word that occurs within frames. The frame header, data field, and CRC all consist of data words.

*See also* [frame](#), [ordered set](#), [transmission word](#).

**datagram**

A Class 3 Fibre Channel service that allows data to be sent quickly to devices attached to the fabric, without receipt confirmation.

**DCE**

Data communications equipment. Usually refers to a modem.

**dedicated simplex**

A connection method that permits a single N\_Port to simultaneously initiate a session with one N\_Port as an initiator and have a separate Class 1 connection to another N\_Port as a recipient.

**defined zone configuration**

The set of all zone objects defined in the fabric. Can include multiple zone configurations.

*See also* [enabled zone configuration](#), [zone configuration](#).

**DHCP**

Dynamic Host Configuration Protocol.

**DHCPD**

Dynamic Host Configuration Protocol daemon.

**digital certificate**

An electronic document issued by a CA (certificate authority) to an entity, containing the public key and identity of the entity. Entities in a secure fabric are authenticated based on these certificates.

*See also* [authentication](#), [CA](#), [public key](#).

**disparity**

The proportion of 1s and 0s in an encoded character. "Neutral disparity" means an equal number of each, "positive disparity" means a majority of 1s, and "negative disparity" means a majority of 0s.

**DLS**

Dynamic load-sharing. Dynamic distribution of traffic over available paths. Allows for recomputing of routes when an Fx\_Port or E\_Port changes status.

**domain controller**

A domain controller (or embedded port) communicates with and gets updates from other switches' embedded ports. The well-known address is `ffffcdd`, where `dd` = domain number.

**domain ID**

A unique identifier for all switches in a fabric, used in routing frames. Usually automatically assigned by the principal switch but can be assigned manually. The domain ID for a hp StorageWorks switch can be any integer between 1 and 239.

**DTE**

Data terminal equipment. Usually refers to a terminal.

**DWDM**

Dense wave division multiplexing. Allows more wavelengths to use the same fiber.

*See also* [WDM](#).

**E\_D\_TOV**

Error-detect timeout value. The minimum amount of time a target waits for a sequence to complete before initiating recovery. Can also be defined as the maximum time allowed for a round-trip transmission before an error is declared.

*See also* [R\\_A\\_TOV](#), [RR\\_TOV](#).

**E\_Port**

Expansion port. A type of switch port that can be connected to an E\_Port on another switch to create an ISL.

*See also* [ISL](#).

**ECCN**

Export classification control number. A government classification of encryption. For example, SSH is in the high-encryption category (number 5x02) and therefore has certain restrictions regarding its transfer.

**EE\_Credit**

End-to-end credit. The number of receive buffers allocated by a recipient port to an originating port. Used by Class 1 and 2 services to manage frame exchange across the fabric, between source and destination.

*See also* [BB\\_Credit](#), [end-to-end flow control](#).

**EIA rack**

A storage rack that meets the standards set by the Electronics Industry Association (EIA).

**ELP**

Exchange link parameters.

**ELS**

Extended link service. ELSs are sent to the destination N\_Port to perform the requested function or service. ELS is a Fibre Channel standard that is sometimes referred to as "Fibre Channel Physical (FC\_PH) ELS."

**EM**

Environmental monitor. Monitors FRUs and reports failures.

**embedded port**

An embedded port (or domain controller) communicates and get updates from other switches' embedded ports. The well-known address is `fffcdd`, where `dd` = domain number.

**EMI**

Electromagnetic interference.

**emulex**

A brand of host bus adapter.



**enabled zone configuration**

The currently enabled configuration of zones. Only one configuration can be enabled at a time.

*See also* [defined zone configuration](#), [zone configuration](#).

**end-to-end flow control**

Governs flow of Class 1 and 2 frames between N\_Ports.

*See also* [EE\\_Credit](#).

**entry fabric**

The basic software license that allows one E\_Port per switch.

**EOF**

End of frame. A group of ordered sets used to mark the end of a frame.

**error**

As it applies to the Fibre Channel industry, a missing or corrupted frame, timeout, loss of synchronization, or loss of signal (link errors).

*See also* [loop failure](#).

**Ethernet**

Popular protocols for LANs.

**EVMd**

Event management database. Delivers FDMI-related events.

**exchange**

The highest-level Fibre Channel mechanism used for communication between N\_Ports.

Composed of one or more related sequences, it can work in either one or both directions.

**F\_BSY**

Fabric port busy frame. A frame issued by the fabric to indicate that a frame cannot be delivered because the fabric or destination N\_Port is busy.

**F\_Port**

Fabric port. A port that is able to transmit under fabric protocol and interface over links. Can be used to connect an N\_Port to a switch.

*See also* [FL\\_Port](#), [Fx\\_Port](#).

**F\_RJT**

Fabric port reject frame. A frame issued by the fabric to indicate that delivery of a frame is being denied, perhaps because a class is not supported, there is an invalid header, or no N\_Port is available.

**fabric**

A Fibre Channel network containing two or more switches in addition to hosts and devices. Also referred to as a "switched fabric."

*See also* [cascade](#), [SAN](#), [topology](#).

**Fabric Manager**

An optionally licensed software. Fabric Manager is a GUI that allows for fabric-wide administration and management. Switches can be treated as groups, and actions such as firmware downloads can be performed simultaneously.

**Fabric Mode**

One of two possible modes for an L\_Port, in which the L\_Port is connected to another port that is not loop capable, using fabric protocol.

**fabric name**

The unique identifier assigned to a fabric and communicated during login and port discovery.

**fabric port count**

The number of ports available for connection by nodes in a fabric.

**fabric services**

Codes that describe the communication to and from any well-known address.

**fabric topology**

The arrangement of switches that form a fabric.

**Fabric Watch**

An optionally licensed software. Fabric Watch can be accessed through either the command line or Advanced Web Tools, and it provides the ability to set thresholds for monitoring fabric conditions.

**failover**

Describes the Core Switch 2/64 process of one CP passing active status to another CP. A failover is nondisruptive.

**FAN**

Fabric address notification. Retains the AL\_PA and fabric address when a loop reinitializes, if the switch supports FAN.

**fan-in**

The ratio of hosts to storage devices; the view of the SAN from the storage port's perspective.

**fan-out**

The ratio of storage devices to hosts; the view of the SAN from the host port's perspective.

**FC-0**

Lowest layer of Fibre Channel transport. Represents physical media.

**FC-1**

Layer of Fibre Channel transport that contains the 8b/10b encoding scheme.

**FC-2**

Layer of Fibre Channel transport that handles framing and protocol, frame format, sequence/exchange management, and ordered set usage.

**FC-3**

Layer of Fibre Channel transport that contains common services used by multiple N\_Ports in a node.

**FC-4**

Layer of Fibre Channel transport that handles standards and profiles for mapping upper-level protocols such as SCSI and IP onto the Fibre Channel Protocol.

**FC-AL-3**

The Fibre Channel arbitrated-loop standard defined by ANSI. Defined on top of the FC-PH standards.

**FC-AV**

Fibre Channel audio visual.

**FCC**

Federal Communications Commission.

**FC-CT**

Fibre Channel common transport.

**FC-FG**

Fibre Channel generic requirements.

**FC-FLA**

The Fibre Channel fabric loop-attach standard defined by ANSI.

**FC-FS**

Fibre Channel framing and signaling.

**FC-GS**

Fibre Channel generic services.

**FC-GS-2**

Fibre Channel generic services, second generation.

**FC-GS-3**

Fibre Channel Generic Services, third generation.

**FC\_IP**

Fibre Channel-over-IP.

**FC-PH**

The Fibre Channel physical and signaling standard for FC-0, FC-1, and FC-2 layers of the Fibre Channel Protocol. Indicates signaling used for cable plants, media types, and transmission speeds.

**FC-PH-2**

Fibre Channel Physical Interface, second generation.

**FC-PH-3**

Fibre Channel Physical Interface, third generation.

**FC-PI**

Fibre Channel Physical Interface standard, defined by ANSI.

**FC-PLDA**

The Fibre Channel Private Loop Direct Attach standard defined by ANSI. Applies to the operation of peripheral devices on a private loop.

**FC\_SB**

Fibre Channel single bytes.

**FC\_VI**

Fibre Channel virtual interface.

**FCA**

Flow-control acknowledgement (DLSW).

**FCIA**

Fibre Channel Industry Association. An international organization of Fibre Channel industry professionals. Provides oversight of ANSI and industry-developed standards, among other tasks.

**FCLC**

Fibre Channel Loop Community.

**FCP**

Fibre Channel Protocol. Mapping of protocols onto the Fibre Channel standard protocols. For example, SCSI FCP maps SCSI-3 onto Fibre Channel.

**FCS**

Fibre Channel Standard.

**FCS switch**

Relates to the Secure Fabric OS feature. One or more designated switches that store and manage security parameters and configuration data for all switches in the fabric. They also act as a set of backup switches to the primary FCS switch.

*See also* [backup FCS switch](#), [primary FCS switch](#).

**FC-SW-2**

The second-generation Fibre Channel Switch Fabric standard defined by ANSI. Specifies tools and algorithms for the interconnection and initialization of Fibre Channel switches to create a multiswitch Fibre Channel fabric.

**FDDI**

Fibre Distributed Data Interface. An ANSI architecture for a metropolitan area network (MAN); a network based on the use of fiber-optic cable to transmit data at 100 Mb/sec.

**FDMI**

Fabric-Device Management Interface. FDMI is a database service provided by the fabric for Nx\_Ports. The primary use is by HBA devices that register information about themselves and their ports.

**FFFFF5**

Well-known Fibre Channel address for a Class 6 multicast server.

**FFFFF6**

Well-known Fibre Channel address for a clock synchronization server.

**FFFFF7**

Well-known Fibre Channel address for a security key distribution server.

**FFFFF8**

Well-known Fibre Channel address for an alias server.

**FFFFF9**

Well-known Fibre Channel address for a QoS facilitator.

**FFFFFA**

Well-known Fibre Channel address for a management server.

**FFFFFB**

Well-known Fibre Channel address for a time server.

**FFFFFC**

Well-known Fibre Channel address for a directory server.

**FFFFFD**

Well-known Fibre Channel address for a fabric controller.

**FFFFFE**

Well-known Fibre Channel address for a fabric F\_Port.

**FFFFF5**

Well-known Fibre Channel address for a broadcast alias ID.

**Fibre Channel**

Fibre Channel is a protocol used to transmit data between servers, switches, and storage devices. It is a high-speed, serial, bidirectional, topology-independent, multiprotocol, and highly scalable interconnection between computers, peripherals, and networks.

**Fibre Channel transport**

A protocol service that supports communication between Fibre Channel service providers.

*See also* [FSP](#).

**FICON**

A protocol used on IBM mainframes. hp StorageWorks switch FICON support enables a hp StorageWorks fabric to transmit FICON format data between FICON-capable servers and storage.

**FIFO**

First in, first out. Refers to a data buffer that follows the first in, first out rule.

**fill word**

An IDLE or ARB ordered set that is transmitted during breaks between data frames to keep the Fibre Channel link active.

**firmware**

The basic operating system provided with the hardware.

**FL\_Port**

Fabric loop port. A port that is able to transmit under fabric protocol and also has arbitrated loop capabilities. Can be used to connect an NL\_Port to a switch.

*See also* [F\\_Port](#), [Fx\\_Port](#).

**flash**

Programmable nonvolatile RAM (NVRAM) memory that maintains its contents without power.

**FLOGI**

Fabric login. The process by which an N\_Port determines whether a fabric is present and, if so, exchanges service parameters with it.

*See also* [PLOGI](#).

**FOTP**

Fiber Optic Test Procedure. Standards developed and published by the Electronic Industries Association (EIA) under the EIA-RS-455 series of standards.

**FPD**

Field-programmable device. Interchangeable with “PLD.”

**FPGA**

Field-programmable gate array. An FPD that allows high logic capacity.

**fractional bandwidth**

The partial use of a link to send data back and forth, with a maximum of 254 Class 4 connections per N\_Port.

**frame**

The Fibre Channel structure used to transmit data between ports. Consists of a start-of-frame delimiter, header, optional headers, data payload, cyclic redundancy check (CRC), and end-of-frame delimiter. There are two types of frames: link control frames (transmission acknowledgements and so forth) and data frames.

**frame relay**

A protocol that uses logical channels, as used in X.25. Provides very little error-checking ability. Discards frames that arrive with errors. Allows a certain level of bandwidth between two locations (known as a "committed information rate:" CIR) to be guaranteed by service provider. If CIR is exceeded for short periods (known as "bursts"), the network accommodates the extra data, if spare capacity is available. Frame relay is therefore known as "bandwidth on demand."

**FRU**

Field-replaceable unit. A component that can be replaced onsite.

**FS**

Fibre Channel service. A service that is defined by Fibre Channel standards and exists at a well-known address. For example, the Simple Name Server is a Fibre Channel service.

*See also* [FSP](#).

**FSP**

Fibre Channel Service Protocol. The common protocol for all fabric services, transparent to the fabric type or topology.

*See also* [FS](#).

**FSPF**

Fabric shortest path first. The routing protocol for Fibre Channel switches.

**FSS**

Fabric OS state synchronization. The FSS service is related to high availability (HA). The primary function of FSS is to deliver state update messages from active components to their peer standby components. FSS determines if fabric elements are synchronized (and thus FSS "compliant").

**FTP**

File Transfer Protocol.

**FTS**

Fiber Transport Services.

**full duplex**

A mode of communication that allows the same port to simultaneously transmit and receive frames.

*See also* [half duplex](#).

**full fabric**

The software license that allows multiple E\_Ports on a switch, making it possible to create multiple ISL links.

**full fabric citizenship**

A loop device that has an entry in the Simple Name Server.

**Fx\_Port**

A fabric port that can operate as either an F\_Port or FL\_Port.

*See also* [F\\_Port](#), [FL\\_Port](#).

**G\_Port**

Generic port. A port that can operate as either an E\_Port or an F\_Port. A port is defined as a G\_Port when it is not yet connected or has not yet assumed a specific function in the fabric.

**gateway**

Hardware that connects incompatible networks by providing translation for both hardware and software. For example, an ATM gateway can be used to connect a Fibre Channel link to an ATM connection.

**GBIC**

Gigabit interface converter. A removable serial transceiver module that allows gigabaud physical-level transport for Fibre Channel and gigabit Ethernet.

**Gb/sec**

Gigabits per second (1,062,500,000 bits/second).

**GB/sec**

Gigabytes per second (1,062,500,000 bytes/second).

**GLM**

Gigabit Link Module. A semitransparent transceiver that incorporates serializing/deserializing functions.

**GMT**

Greenwich Mean Time. An international time zone. Also known as "UTC."

**GUI**

A graphic user interface, such as Advanced Web Tools and Fabric Manager.



**HA**

High availability. The High availability features in hp StorageWorks switches are designed to provide maximum reliability and nondisruptive replacement of key hardware and software modules.

**half duplex**

A mode of communication that allows a port to either transmit or receive frames at any time except simultaneously (with the exception of link control frames, which can be transmitted at any time).

*See also* [full duplex](#).

**hard address**

The AL\_PA that an NL\_Port attempts to acquire during loop initialization.

**HBA**

Host bus adapter. The interface card between a server or workstation bus and the Fibre Channel network.

**HCPLD**

High-capacity PLD. Refers to both CPLDs and FPGAs.

**header**

A Fibre Channel frame has a header and a payload. The header contains control and addressing information associated with the frame.

**HiPPI**

High-Performance Parallel Interface. An 800 Mb/sec interface normally used in supercomputer environments.

**hop count**

The number of ISLs a frame must traverse to get from its source to its destination.

**host**

A computer system that provides end users with services like computation and storage access.

**hot swappable**

A hot-swappable component can be replaced under power.

**hp StorageWorks**

The brand name for the family of switches.

**HSSDC**

High-speed serial data connection. A form factor that allows quick connections for copper interface.

**HSSDC-2**

A second-generation HSSDC connector.

**HTTP**

Hypertext Transfer Protocol. The standard TCP/IP transfer protocol used on the World Wide Web.

**hub**

A Fibre Channel wiring concentrator that collapses a loop topology into a physical-star topology. Nodes are automatically added to the loop when active and removed when inactive.

**hunt group**

A number of N\_Ports registered as a single Alias\_ID so that the fabric can route a word to a port that is not busy.

**HW**

Hardware.

**I2C**

Related to internal circuitry on motherboard.

**ICT**

Intracircuit test.

**ID\_ID**

Insistent domain ID. A parameter of the [configure](#) command in the Fabric OS.

**idle**

Continuous transmission of an ordered set over a Fibre Channel link when no data is being transmitted, to keep the link active and maintain bit, byte, and word synchronization.

**iFCP**

Internet Fibre Channel Protocol. Supports Fibre Channel Layer 4 FCP-over-TCP/IP. It is a gateway-to-gateway protocol in which TCP/IP switching and routing components enhance or replace Fibre Channel fabric.

**in-band**

Transmission of management protocol over the Fibre Channel.

**initiator**

A server or workstation on a Fibre Channel network that initiates communication with storage devices.

*See also* [target](#).

**Insistent Domain ID Mode**

Sets the domain ID of a switch as insistent, so that it remains the same over reboots, power cycles, failovers, and fabric reconfigurations. This mode is required to support FICON traffic.

**integrated fabric**

The fabric created by a hp StorageWorkshp StorageWorks SAN Switch Intergrated/64, consisting of six hp StorageWorks 1Gb switches cabled together and configured to handle traffic seamlessly as a group.

**intercabinet**

A specification for copper cabling that allows up to 33-meter distances between cabinets.

**intermix**

Allows any unused bandwidth in a Class 1 connection.

**intracabinet**

A specification for copper cabling that allows up to a 13-meter (42-foot) distance within a single cabinet.

**IOCTL**

I/O control.

**IOD**

In-order delivery. A parameter that, when set, guarantees that frames are either delivered in order or dropped.

**IP**

Internet Protocol. The addressing part of TCP.

**IPI**

Intelligent Peripheral Interface.

**ISC**

Internet Software Consortium.

**iSCSI**

Internet Small Computer Systems Interface. A protocol that defines the processes for transferring block storage applications over TCP/IP networks by encapsulating SCSI commands into TCP and transporting them over the network via IP.

**ISL**

Interswitch link. A Fibre Channel link from the E\_Port of one switch to the E\_Port of another.

*See also* [cascade](#), [E\\_Port](#).

**ISL oversubscription ratio**

The ratio of the number of free ports (non-ISL) to the number of ISLs on a switch.

**isolated E\_Port**

An E\_Port that is online but not operational due to overlapping domain IDs or nonidentical parameters (such as E\_D\_TOVs).

*See also* [E\\_Port](#).

**ISP**

Internet service provider.

**IU**

Information unit. A set of information as defined by either an upper-level process protocol definition or upper-level protocol mapping.

**JBOD**

"Just a bunch of disks." Indicates a number of disks connected in a single chassis to one or more controllers.

*See also* [RAID](#).

**jitter**

A deviation in timing for a bit stream as it flows through a physical medium.

**K28.5**

A special 10-bit character used to indicate the beginning of a transmission word that performs Fibre Channel control and signaling functions. The first seven bits of the character are the comma pattern.

*See also* [comma](#).

**key**

A string of data (usually a numeric value) shared between two entities and used to control a cryptographic algorithm. Usually selected from a large pool of possible keys to make unauthorized identification of the key difficult.

*See also* [key pair](#).

**key pair**

In public key cryptography, a pair of keys consisting of an entity's public and private key. The public key can be publicized, but the private key must be kept secret.

*See also* [public key cryptography](#).

**L\_Port**

Loop port. A node port (NL\_Port) or fabric port (FL\_Port) that has arbitrated loop capabilities. An L\_Port can be in either Fabric Mode or Loop Mode.

**LAN**

Local area network. A network in which transmissions typically take place over fewer than 5 kilometers (3.4 miles).

**latency**

The time required to transmit a frame. Together, latency and bandwidth define the speed and capacity of a link or system.

**LED**

Light-emitting diode. Used to indicate the status of elements on a switch.

**LIFA**

Loop-initialization fabric-assigned frame. Contains a bitmap of all fabric-assigned AL\_PAs and is the first frame transmitted in the loop initialization process after a temporary loop master has been selected.

**LIHA**

Loop-initialization hard-assigned frame. A hard-assigned AL\_PA that is indicated by a bit set and is the third frame transmitted in the loop initialization process after a temporary loop master has been selected.

**LILP**

Loop-initialization loop-position frame. The final frame transmitted in a loop initialization process. A returned LIRP contains an accumulation of all of the AL\_PA position maps. This allows loop members to determine their relative loop position. This is an optional frame and is not transmitted unless the LIRP is also transmitted.

**link control facility**

A termination, handling physical and logical control of the Fibre Channel link for each mode.

**Link Services**

A protocol for link-related actions.

**LIP**

Loop initialization primitive. The signal used to begin initialization in a loop. Indicates either loop failure or node resetting.

**LIPA**

Loop-initialization previously assigned. The device marks a bit in the bitmap if it did not log in with the fabric in a previous loop initialization.

**LIRP**

Loop-initialization report position frame. The first frame transmitted in the loop initialization process after all L\_Ports have selected an AL\_PA. The LIRP gets transmitted around the loop so all L\_Ports can report their relative physical position. This is an optional frame.

**LISA**

Loop-initialization soft-assigned frame. The fourth frame transmitted in the loop initialization process after a temporary loop master has been selected. L\_Ports that have not selected an AL\_PA in a LIFA, LIPA, or LIHA frame select their AL\_PA here.

**LISM**

Loop-initialization select master frame. The first frame transmitted in the initialization process when L\_Ports select an AL\_PA. LISM is used to select a temporary loop master or the L\_Port that will subsequently start transmission of the LIFA, LIPA, LIHA, LISA, LIRP, or LILP frames.

**LM\_TOV**

Loop master timeout value. The minimum time that the loop master waits for a loop initialization sequence to return.

**login server**

The unit that responds to login requests.

**loop circuit**

A temporary bidirectional communication path established between L\_Ports.

**loop failure**

Loss of signal within a loop for any period of time, or loss of synchronization for longer than the timeout value.

**loop\_ID**

A hexadecimal value representing one of the 127 possible AL\_PA values in an arbitrated loop.

**loop initialization**

The logical procedure used by an L\_Port to discover its environment. Can be used to assign AL\_PA addresses, detect loop failure, or reset a node.

**Loop Mode**

One of two possible modes for an L\_Port, in which the L\_Port is in an arbitrated loop, using loop protocol. An L\_Port in Loop Mode can also be in Participating Mode or Nonparticipating Mode.

**looplest**

A set of devices connected in a loop to a port that is a member of another loop.

**LPB**

Loop port bypass. A primitive sequence transmitted by an L\_Port to bypass one or all L\_Ports to which it is directed. It is used only in arbitrated loops.

**LPE**

Loop port enable. A primitive sequence transmitted by an L\_Port to enable one or all L\_Ports that have been bypassed with the LPB. It is used only in arbitrated loops.

**LPSM**

Loop Port State Machine. Logic that monitors and performs the tasks required for initialization and access to the loop. It is maintained by an L\_Port to track behavior through different phases of loop operations. Alternatively, the logical entity that performs arbitrated-loop protocols and defines the behavior of L\_Ports when they require access to an arbitrated loop.

**LR**

Link reset. A primitive sequence used during link initialization between two N\_Ports in point-to-point topology or an N\_Port and an F\_Port in fabric topology. The expected response is an LRR.

**LRR**

Link reset response. A primitive sequence during link initialization between two N\_Ports in point-to-point topology or an N\_Port and an F\_Port in fabric topology. It is sent in response to an LR and expects a response of Idle.

**LWL**

Long wavelength. A type of fiber optic cabling that is based on 1300-nm lasers and supports link speeds of 1.0625 Gb/sec. LWL can also refer to the type of GBIC or SFP.

See also [SWL](#).

**MALLOC**

Memory allocation. Usually relates to buffer credits.

**MAN**

Metropolitan area network.

**MB/sec**

Megabytes per second.

**Mb/sec**

Megabits per second.

**metric**

A relative value assigned to a route to aid in calculating the shortest path (1000 @ 1 Gb/sec, 500 @ 2 Gb/sec).

**MIA**

Media interface adapter. A device that converts optical connections to copper ones, and vice-versa.

**MIB**

Management Information Base. An SNMP structure to help with device management, providing configuration and device information.

**MMF**

Multimode fiber.

*See also* [SWL](#).

**MRK**

Mark primitive signal. Used only in arbitrated loop, MRK is transmitted by an L\_Port for synchronization and is vendor specific.

**MS**

Management Server. The Management Server allows a storage area network (SAN) management application to retrieve information and administer the fabric and interconnected elements, such as switches, servers, and storage devices. The MS is located at the Fibre Channel well-known address FFFFFAh.

**MSD**

Management Server daemon. Monitors the MS. Includes the Fabric Configuration Service and the Unzoned Name Server.

**MTBF**

Mean time between failures. An expression of time, indicating the longevity of a device.

**multicast**

The transmission of data from a single source to multiple specified N\_Ports (as opposed to all the ports on the network).

*See also* [broadcast](#), [unicast](#).

**multimode**

A fiber optic cabling specification that allows up to 500 meters between devices.

**N\_Port**

Node port. A port on a node that can connect to a Fibre Channel port or to another N\_Port in a point-to-point connection.

*See also* [NL\\_Port](#), [Nx\\_Port](#).

**Name Server**

Simple Name Server (SNS). A switch service that stores names, addresses, and attributes for up to 15 minutes and provides them as required to other devices in the fabric. SNS is defined by Fibre Channel standards and exists at a well-known address. Also referred to as "directory service."

**NAS**

Network-attached storage. A disk array connected to a controller that gives access via a LAN.

**NDMP**

Network Data Management Protocol. Used for tape backup without using server resources.



**NL\_Port**

Node loop port. A node port that has arbitrated loop capabilities. Used to connect an equipment port to the fabric in a loop configuration through an FL\_Port.

*See also* [N\\_Port](#), [Nx\\_Port](#).

**node**

A Fibre Channel device that contains an N\_Port or NL\_Port.

**node count**

The number of nodes attached to a fabric.

**node name**

The unique identifier for a node, communicated during login and port discovery.

**Nonparticipating Mode**

A mode in which an L\_Port in a loop is inactive and cannot arbitrate or send frames but can retransmit received transmissions. This mode is entered if there are more than 127 devices in a loop and an AL\_PA cannot be acquired.

*See also* [L\\_Port](#), [Participating Mode](#).

**NOS**

Not operational. The NOS primitive sequence is transmitted to indicate that the FC\_Port transmitting the NOS has detected a link failure or is offline, waiting for the offline sequence (OLS) to be received.

**NS**

Name Server. The service provided by a fabric switch that stores names, addresses, and attributes related to Fibre Channel objects. Can cache information for up to 15 minutes. Also known as "Simple Name Server" or as a "directory service."

*See also* [Simple Name Server \(SNS\)](#).

**NSCAM**

Name Server Cache Manager. Updates the Name Server (NS) databases across switches as a background task.

**Nx\_Port**

A node port that can operate as either an N\_Port or NL\_Port.

**OFC**

Open fiber control. A method used to enable and disable laser signaling for higher-intensity laser transceivers.

**OLS**

Primitive sequence offline.

**OLTP**

Online transaction processing.

**ON**

Offline notification. Refers to an ELS field that appears in [portLogDump](#) command output.

**OPN**

Open primitive signal. Applies only to an arbitrated loop; sent by an L\_Port that has won the arbitration process to open communication with one or more ports on the loop.

**ordered set**

A transmission word that uses 8Bb/10B mapping and begins with the K28.5 character. Ordered sets occur outside of frames and include the following items:

- **Frame delimiters.** Mark frame boundaries and describe frame contents.
- **Primitive signals.** Indicate events.
- **Primitive sequences.** Indicate or initiate port states.

Ordered sets are used to differentiate Fibre Channel control information from data frames and to manage frame transport.

**originator**

The Nx\_Port that originated an exchange.

**out of band**

Transmission of management protocol outside of the Fibre Channel network, usually over Ethernet.

**oversub-scription**

A situation in which more nodes could potentially contend for a resource than the resource could simultaneously support (typically an ISL). Oversubscription could be a desirable attribute in fabric topology, as long as it does not produce unacceptable levels of congestion.

**OX\_ID**

Originator ID. Refers to the exchange ID assigned by the originator port.

**packet**

A set of information transmitted across a network.

*See also* [frame](#).

**PAL**

Programmable Array Logic. A relatively small FPD.

**parallel**

The simultaneous transmission of data bits over multiple lines.

**Participating Mode**

A mode in which an L\_Port in a loop has a valid AL\_PA and can arbitrate, send frames, and retransmit received transmissions.

*See also* [L\\_Port](#), [Nonparticipating Mode](#).

**passive copper**

A low-cost copper Fibre Channel connection, allowing distances up to 13 meters between devices.

**path selection**

The selection of a transmission path through the fabric. Switches use the FSPF protocol.

*See also* [FSPF](#).

**payload**

A Fibre Channel frame has a header and a payload. The payload contains the information being transported by the frame; it is determined by the higher-level service or FC\_4 upper-level protocol. There are many different payload formats.

**PBC**

Port bypass circuit. A circuit in hubs or a disk enclosure to open or close a loop to add or remove nodes.

**PCBA**

Printed circuit board assembly.

**PCM**

Pulse-code modulation. A standard method of encoding analog audio signals in digital form.

**Performance Monitoring**

A hp StorageWorks switch feature that monitors port traffic and includes frame counters, SCSI read monitors, SCSI write monitors, and other types of monitors.

**persistent error log**

Error messages of a high enough level (by default, Panic or Critical) are saved to flash memory on the switch instead of to RAM. These messages are saved over reboots and power cycles, constituting the persistent error log. Note that each CP on a Core Switch 2/64 has its own unique persistent error log.

**phantom address**

An AL\_PA value that is assigned to a device that is not physically in the loop. Also known as "phantom AL\_PA."

**phantom device**

A device that is not physically in an arbitrated loop but is logically included through the use of a phantom address.

**PID**

Port identifier.

*See also* [core PID](#).

**PKI**

Public key infrastructure. An infrastructure that is based on public key cryptography and CA (certificate authority) and that uses digital certificates.

*See also* [CA](#), [digital certificate](#), [public key cryptography](#).

**PKI certification utility**

Public key infrastructure certification utility. A utility that makes it possible to collect certificate requests from switches and to load certificates to switches.

*See also* [digital certificate](#), [PKI](#).

**PLA**

Programmable logic array. A small FPD.

**PLD**

Programmable logic device. Interchangeable with “FPD.”

**PLDA**

Private loop direct-attached. A technical report specifying a logical loop.

**PLOGI**

Port login. The port-to-port login process by which initiators establish sessions with targets.

*See also* [FLOGI](#).

**point to point**

A Fibre Channel topology that employs direct links between each pair of communicating entities.

*See also* [topology](#).

**port**

In a hp StorageWorks switch environment, an SFP or GBIC receptacle on a switch to which an optic cable for another device is attached.

**port address**

In Fibre Channel technology, the port address is defined in hexadecimal. In the Fabric OS, a port address can be defined by a domain and port number combination or by area number. In an ESCON Director, an address used to specify port connectivity parameters and to assign link addresses for attached channels and control units.

**port cage**

The metal casing extending out of the optical port on the switch, into which the SFP can be inserted.

**port card**

A hardware component that provides a platform for field-replaceable, hot-swappable ports.

**port log**

A record of all activity on a switch, kept in volatile memory.

**port log dump**

A view of what happens on a switch, from the switch's point of view. The [portLogDump](#) command is used to read the port log.

**port name**

A user-defined alphanumeric name for a port.

**port swapping**

Port swapping is the ability to redirect a failed port to another port. This feature is available in Fabric OS v4.1.0 and higher.

**port\_name**

The unique identifier assigned to a Fibre Channel port. Communicated during login and port discovery.

**POST**

Power-on self-test. A series of tests run by a switch after it is turned on.

**PPP**

Point-to-Point Protocol.

**primary FCS switch**

Relates to the Secure Fabric OS feature. The primary fabric configuration server switch actively manages security and configurations for all switches in the fabric.

*See also* [backup FCS switch](#), [FCS switch](#)

**primitive sequence**

An ordered set that is transmitted repeatedly and continuously. Primitive sequences are transmitted to indicate specific conditions within or conditions encountered by the receiver logic of an FC\_Port.

*See* [OLS](#), [NOS](#).

**primitive signals**

An ordered set that indicates actions or events and requires just one occurrence to trigger a response. IDLE and R\_RDY are used in all three topologies: ARB, OPN, and CLS. MRK is used in arbitrated loop.

**principal switch**

The first switch to boot up in a fabric. Ensures unique domain IDs among roles.

**private device**

A device that supports arbitrated-loop protocol and can interpret 8-bit addresses but cannot log in to the fabric.

**private key**

The secret half of a key pair.

*See also* [key](#), [key pair](#).

**private loop**

An arbitrated loop that does not include a participating FL\_Port.

**private loop device**

A device that supports a loop and can understand 8-bit addresses but does not log in to the fabric.

**private NL\_Port**

An NL\_Port that communicates only with other private NL\_Ports in the same loop and does not log in to the fabric.

**protocol**

A defined method and set of standards for communication. Determines the type of error-checking, the data-compression method, how sending devices indicate an end of message, and how receiving devices indicate receipt of a message.

**pstate**

Port State Machine.

**PSU**

Power supply unit.

**public device**

A device that supports arbitrated-loop protocol, can interpret 8-bit addresses, and can log in to the fabric.

**public key**

The public half of a key pair.

*See also* [key](#), [key pair](#).

**public key cryptography**

A type of cryptography that uses a key pair, with the two keys in the pair called at different points in the algorithm. The sender uses the recipient's public key to encrypt the message, and the recipient uses the recipient's private key to decrypt it.

*See also* [key pair](#), [PKI](#).

**public loop**

An arbitrated loop that includes a participating FL\_Port and can contain both public and private NL\_Ports.

**public NL\_Port**

An NL\_Port that logs in to the fabric, can function within either a public or a private loop, and can communicate with either private or public NL\_Ports.

**QLA**

A type of Fibre Channel controller.

**QLFA**

QuickLoop Fabric Assist. Arbitrated-loop technology.

**QoS**

Quality of service.

**quad**

A group of four adjacent ports that share a common pool of frame buffers.

**queue**

A mechanism for each AL\_PA address that allows for collecting frames prior to sending them to the loop.

**QuickLoop**

A software product that allows multiple ports on a switch to create a logical loop. Devices connected via QuickLoop appear to each other as if they are on the same arbitrated loop.

**QuickLoop Mode**

Allows initiator devices to communicate with private or public devices that are not in the same loop.

**R\_A\_TOV**

Resource allocation timeout value. The maximum time a frame can be delayed in the fabric and still be delivered.

*See also* [E\\_D\\_TOV](#), [RR\\_TOV](#).

**R\_CTL**

Route control. The first 8 bits of the header, which defines the type of frame and its contents.

**R\_RDY**

Receiver ready. A primitive signal indicating that the port is ready to receive a frame.

**R\_T\_TOV**

Receiver transmitter timeout value, used by receiver logic to detect loss of synchronization between transmitters and receivers.

**radius**

The greatest "distance" between any edge switch and the center of a fabric. A low-radius network is better than a high-radius network.

**RAID**

Redundant array of independent disks. A collection of disk drives that appear as a single volume to the server and are fault tolerant through mirroring or parity checking.

*See also* [JBOD](#).

**RAIT**

Redundant array of independent tapes.

**RCS**

Reliable Commit Service. Refers to -specific ILS command code.

**RCS\_SFC**

RCS Stage Fabric Config. Refers to -specific ILS command code.

**receiver**

A device that performs detection and signal processing.

**redundancy**

Having multiple occurrences of a component to maintain high availability (HA).

**remote switch**

An optional product for long-distance fabrics, requiring a Fibre Channel-to-ATM or SONET gateway.

**repeater**

A circuit that uses a recovered clock to regenerate and transmit an outbound signal.

**request rate**

The rate at which requests arrive at a servicing entity.

**resilience**

A fabric's ability to adapt to or tolerate a failure of a component within the fabric.

**resilient core/edge topology**

Two or more switches acting as a core to interconnect multiple edge switches. Nodes attach to the edge switches.

**responder**

The N\_Port with which an exchange originator wants to communicate.

**retimer**

A circuit that uses an independent clock to generate outbound signals.



**return loss**

The ratio (expressed in dB) of incident power to reflected power, when a component or assembly is introduced into a link or system. Return loss can also refer to optical power or to electrical power in a specified frequency range.

**RLS**

Read Link Status.

**route**

As it applies to a fabric, the communication path between two switches. Might also apply to the specific path taken by an individual frame, from source to destination.

*See also* [FSPF](#).

**routing**

The assignment of frames to specific switch ports, according to frame destination.

**RR\_TOV**

Resource recovery timeout value. The minimum time a target device in a loop waits after an LIP before logging out an SCSI initiator.

*See also* [E\\_D\\_TOV](#), [R\\_A\\_TOV](#).

**RSCN**

Registered state change notification. A switch function that allows notification of fabric changes to be sent from the switch to specified nodes. The fabric controller issues RSCN requests to N\_Ports and NL\_Ports, but only if they have registered to be notified of state changes in other N\_Ports and NL\_Ports. This registration is performed via the State Change Registration (SCR) Extended Link Service. An N\_Port or NL\_Port can issue an RSCN to the fabric controller without having completed SCR with the fabric controller.

**RTWR**

Reliable transport with response. Might appear as a task in [portLogDump](#) command output.

**running disparity**

A binary parameter indicating the cumulative disparity (positive or negative) of all previously issued transmission characters.

**RW**

Read/write. Refers to access rights.

**RX**

Receiving frames.

**RX\_ID**

Responder exchange identifier. A 2-byte field in the frame header that can be used by the responder of the exchange to identify frames as being part of a particular exchange.

**S\_ID**

Source ID. Refers to the native port address (24 bit address).

**SAN**

Storage area network. A network of systems and storage devices that communicate using Fibre Channel protocols.

*See also* [fabric](#).

**SAN architecture**

The overall design of a storage network solution, which includes one or more related fabrics, each of which has a topology.

**SAN port count**

The number of ports available for connection by nodes in the entire SAN.

**scalability**

One of the properties of a SAN: the size to which a SAN topology can grow port and switch counts with ease.

**SCN**

State change notification. Used for internal state change notifications, not external changes. This is the switch logging that the port is online or is an Fx\_port, not what is sent from the switch to the Nx\_Ports.

**SCR**

State change registration. Extended Link Service (ELS) requests the fabric controller to add the N\_Port or NL\_Port to the list of N\_Ports and NL\_Ports registered to receive the Registered State Change Notification (RSCN) Extended Link Service.

**SCSI**

Small Computer Systems Interface. A parallel bus architecture and a protocol for transmitting large data blocks to a distance of 15 to 25 meters.

**SCSI-2**

An updated version of the SCSI bus architecture.

**SCSI-3**

An SCSI standard that defines transmission of SCSI protocol data over different kinds of links.

**SDRAM**

The main memory for a switch.

**sectelnet**

A protocol similar to telnet but with encrypted passwords for increased security.

**Secure Fabric OS**

A separately sold feature that provides advanced, centralized security for a fabric.

**security policy**

Rules that determine how security is implemented in a fabric. Security policies can be customized through Secure Fabric OS or Fabric Manager.

**SEQ\_ID**

Sequence identifier. A 1-byte field in the frame header change to identify the frames as being part of a particular exchange sequence between a pair of ports.

**sequence**

A group of related frames transmitted in the same direction between two N\_Ports.

**sequence initiator**

The N\_Port that begins a new sequence and transmits frames to another N\_Port.

**sequence recipient**

Serializing/deserializing circuitry. A circuit that converts a serial bit stream into parallel characters, and vice-versa.

**serial**

The transmission of data bits in sequential order over a single line.

**server**

A computer that processes end-user applications or requests.

**service rate**

The rate at which an entity can service requests.

*See also* [request rate](#).

**SFF**

Small-form-factor. An industry term for a smaller transceiver.

*See* [SFP](#).

**SFP**

Small-form-factor pluggable. A transceiver used on 2 GB/sec switches that replaces the GBIC.

**SFP cable**

A cable specifically designed for use with an SFP. Not compatible with GBICs.

**SI**

Sequence initiative.

**Simple Name Server (SNS)**

A switch service that stores names, addresses, and attributes for up to 15 minutes and provides them as required to other devices in the fabric. SNS is defined by Fibre Channel standards and exists at a well-known address. Also referred to as "directory service" or "name server."

**Single CP Mode**

The `-s` option of the [firmwareDownload](#) command. Using [firmwareDownload -s](#) enables Single CP Mode. In the Core Switch 2/64, Single CP Mode enables a user to upgrade a single CP and to select full install, autoreboot, and autocommit.

**Single Mode**

The fiber-optic cabling standard for devices up to 10 km apart.

**S-Link Service**

Facilities used between an N\_Port and the fabric, or between two N\_Ports, for login, sequence/exchange management, and maintaining connections.

**SMDS**

Switched Multimegabit Data Service. A good protocol for interconnecting LANs; however, SMDS has less error-checking capability than Frame Relay.

**SMF**

Single-mode fiber.

See [LWL](#).

**SMI**

Structure of management information. A notation for setting or retrieving SNMP management variables.

**SNA/SDLC**

Systems Network Architecture/Synchronous Data Link Control. A structure for transferring data among a variety of computing platforms.

**SNMP**

Simple Network Management Protocol. An Internet management protocol that uses either IP for network-level functions and UDP for transport-level functions, or TCP/IP for both. Can be made available over other protocols, such as UDP/IP, because it does not rely on the underlying communication protocols.

See also [community \(SNMP\)](#).

**SNS**

Simple Name Server.

**SOF**

Start of frame. A group of ordered sets that marks the beginning of a frame and indicates the class of service the frame will use.

**soft zone**

A zone consisting of zone members that are made visible to each other through client service requests. Typically, soft zones contain zone members that are visible to devices using Name Server exposure of zone members. The fabric does not enforce a soft zone. Note that well-known addresses are implicitly included in every zone.

**SoIP**

SCSI-over-IP.

**SONET**

Synchronous optical network. A standard for optical networks that provides building blocks and flexible payload mappings.

**special character**

A 10-bit character that does not have a corresponding 8-bit value but is still considered valid. The special character is used to indicate that a particular transmission word is an ordered set. This is the only type of character to have five 1s or 0s in a row.

**SPLD**

Simple PLD. Usually, either a PLA or PAL.

**SPOF**

Single point of failure. Any component in a SAN whose malfunction could bring down the entire SAN.

**SQ\_ID**

Sequence ID. Used to identify and track all of the frames within a sequence between a source (S\_ID) and destination (D\_ID) port pair.

**SRM**

Storage resource management. The management of disk volumes and file resources.

**SSH**

Secure shell. Used starting in Fabric OS v4.1 to support encrypted telnet sessions to the switch. SSH encrypts all messages, including the client sending the password at login.

**Standard Translative Mode**

Allows public devices to communicate with private devices that are directly connected to the fabric.

**stealth mode**

A method used in some switches to simulate switches using QuickLoop.

**store-and-forward**

A switching technique that requires buffering an entire frame before making a routing decision.

**striping**

A RAID technique for writing a file to multiple disks on a block-by-block basis, with or without parity.

**switch**

A fabric device providing bandwidth and high-speed routing of data via link-level addressing.

**switch name**

The arbitrary name assigned to a switch.

**switch port**

A port on a switch. Switch ports can be E\_Ports, F\_Ports, or FL\_Ports.

**switch-to-switch authentication**

The process of authenticating both switches in a switch-to-switch connection using digital certificates.

*See also* [authentication](#), [digital certificate](#).

**SWL**

Short wavelength. A type of fiber optic cabling that is based on 850 nm lasers and supports 1.0625 GB/sec. link speeds. SWL can also refer to the type of GBIC or SFP.

*See also* [LWL](#).

**syslog**

Syslog daemon. Used to forward error messages.

**T10**

A standards committee chartered with creating standards for SCSI.

**T11**

A standards committee chartered with creating standards for Fibre Channel.

**tachyon**

A chip that supports FC-0 through FC-2 on a single chip.

**target**

A storage device on a Fibre Channel network.

*See also* [initiator](#).

**TC**

Track changes.

**TCP/IP**

Transmission Control Protocol/Internet Protocol.

**telnet**

A virtual terminal emulation used with TCP/IP. "Telnet" is sometimes used as a synonym for the Fabric OS CLI.

**tenancy**

The time from when a port wins arbitration in a loop until the same port returns to the monitoring state. Also referred to as "loop tenancy."

**throughput**

The rate of data flow achieved within a cable, link, or system. Usually measured in bps (bits per second or b/sec).

See also [bandwidth](#).

**tiering**

The process of grouping particular SAN devices by function and then attaching these devices to particular switches or groups of switches based on that function.

**Time Server**

A Fibre Channel service that allows for the management of all timers.

**topology**

As it applies to Fibre Channel technology, the configuration of the Fibre Channel network and the resulting communication paths allowed. There are three possible topologies:

- **Point to point.** A direct link between two communication ports.
- **Switched fabric.** Multiple N\_Ports linked to a switch by F\_Ports.
- **Arbitrated loop.** Multiple NL\_Ports connected in a loop.

**TPC**

Third-party copy. A protocol for performing tape backups without using server resources.

**track changes**

A Fabric OS feature that can be enabled to report specific activities (for example, logins, logouts, and configuration task changes). The output from the track-changes feature is dumped to the error log for the switch.

**transceiver**

A device that converts one form of signaling to another for transmission and reception; in fiber optics, optical to electrical.

**Translative Mode**

A mode in which private devices can communicate with public devices across the fabric.

**transmission character**

A 10-bit character encoded according to the rules of the 8B/10B algorithm.

**transmission word**

A group of four transmission characters.

**trap (SNMP)**

The message sent by an SNMP agent to inform the SNMP management station of a critical error.

*See also* [SNMP](#).

**trunking**

In Fibre Channel technology, a feature that enables distribution of traffic over the combined bandwidth of up to four ISLs between adjacent switches, while preserving in-order delivery.

**trunking group**

A set of up to four trunked ISLs.

**trunking ports**

The ports in a set of trunked ISLs.

**TS**

Time Server.

**TTL**

Time-to-live. The number of seconds an entry exists in cache before it expires.

**tunneling**

A technique for enabling two networks to communicate when the source and destination hosts are both on the same type of network but are connected by a different type of network.

**TX**

Transmit.

**U\_Port**

Universal port. A switch port that can operate as a G\_Port, E\_Port, F\_Port, or FL\_Port. A port is defined as a U\_Port when it is not connected or has not yet assumed a specific function in the fabric.

**UDP**

User Datagram Protocol. A protocol that runs on top of IP and provides port multiplexing for upper-level protocols.

**ULP**

Upper-level protocol. The protocol that runs on top of Fibre Channel. Typical upper-level protocols are SCSI, IP, HIPPI, and IPI.

**ULP\_TOV**

Upper-level timeout value. The minimum time that an SCSI ULP process waits for SCSI status before initiating ULP recovery.



**unicast**

The transmission of data from a single source to a single destination.

*See also* [broadcast](#), [multicast](#).

**UTC**

Universal Time Conversion. Also known as "Coordinated Universal Time," which is an international standard of time. UTC is 8 hours behind Pacific Standard Time and 5 hours behind Eastern Standard Time.

*See also* [GMT](#).

**WAN**

Wide area network.

**watchdog**

A software daemon that monitors Fabric OS modules on the kernel.

**WDM**

Wavelength division multiplexer. Allows multiple wavelengths to be combined or filtered on a single cable.

**well-known address**

As it pertains to Fibre Channel technology, a logical address defined by Fibre Channel standards as assigned to a specific function and stored on the switch.

**WTV**

Write timeout value. Refers to an ELS field that appears in [portLogDump](#) command output.

**WWN**

World Wide Name. An identifier that is unique worldwide. Each entity in a fabric has a separate WWN.

**X.25**

A protocol that uses logical channels. X.25 allows high-quality communications between computers and can accommodate "noisy" data communications through error-detection and -correction (retransmission) algorithms.

**zone**

A set of devices and hosts attached to the same fabric and configured as being in the same zone. Devices and hosts within the same zone have access to others in the zone but are not visible to any outside the zone.

**zone configuration**

A specified set of zones. Enabling a configuration enables all zones in that configuration.

*See also* [defined zone configuration](#), [enabled zone configuration](#).

**zoning**

A feature in fabric switches or hubs that allows segmentation of a node by physical port, name, or address.

**A**

agtCfgDefault 26  
agtCfgSet 30  
agtCfgShow 34  
aliAdd 37  
aliCreate 39  
aliDelete 41  
aliRemove 43  
aliShow 45  
audience 18  
authorized reseller, HP 23

**B**

backplanetest 47  
backport 50  
bannerset 53  
bannershow 55  
bcastShow 56  
bladeBeacon 58  
bladedisable 60  
bladeenable 62  
bladePropShow 64

**C**

camTest 66  
centralMemoryTest 69  
cfgactvshow 75  
cfgAdd 77  
cfgClear 79  
cfgCreate 81  
cfgdelete 83  
cfgDisable 85

cfgEnable 87  
cfgRemove 89  
cfgSave 91  
cfgShow 93  
cfgSize 96  
cfgTransAbort 98  
cfgtransshow 100  
chassisName 102  
chassisShow 103  
chipPropShow 106  
chipregshow 108  
cmemRetentionTest 110  
cmittest 113  
configdefault 116  
configDownload 118  
configShow 122  
configUpload 124  
configure 126  
conventions  
    document 19  
    equipment symbols 20  
    text symbols 19  
crossporttest 137

**D**

dataTypeShow 143  
date 145  
dbgshow 147  
diagClearError 148  
diagCommandShow 149  
diagDisablePost 151  
diagEnablePost 152  
diagesdports 153

diagfaillimit 155  
diagHelp 157  
diagloopid 160  
diagmodepr 162  
diagpost 163  
diagretry 165  
diagsetburnin 166, 168  
diagshow 170  
diagshowtime 172  
diagsilkworm 174  
diagskiptests 176  
diagstopburnin 178  
dlsReset 180  
dlsSet 181  
dlsShow 183  
dnsconfig 184  
document  
    conventions 19  
    related documentation 18

## E

equipment symbols 20  
errClear 186  
errDump 188  
errNvLogSizeSet 190  
errNvLogSizeShow 192  
errSaveLvlSet 194  
errSaveLvlShow 196  
errShow 197  
exit 199

## F

fabportshow 200  
fabretryshow 203  
fabricprincipal 205  
fabricShow 207  
fabstateclear 209  
fabstateshow 210  
fabStatsShow 211

fabswitchshow 213  
fanDisable 215  
fanEnable 216  
fanShow 217  
fastBoot 219  
faZoneAdd 220  
faZoneCreate 222  
faZoneRemove 225  
fcpProbeShow 229  
fcpRlsShow 231  
fdmicacheshow 233  
fdmishow 235  
ficonclear 237, 241  
ficonHelp 239  
ficonShow 241  
filterTest 252  
firmwareCommit 255  
firmwareDownload 257  
firmwareDownloadStatus 261  
firmwarerestore 263  
firmwareShow 265  
fporttest 267  
fruReplace 271  
fspfShow 273  
fwAlarmsFilterSet 276  
fwAlarmsFilterShow 277  
fwClassInit 278  
fwConfigReload 279  
fwConfigure 280  
fwFruCfg 285  
fwHelp 287  
fwMailCfg 288  
fwsamshow 292  
fwSetToCustom 294  
fwSetToDefault 295  
fwShow 296

## G

getting help 23

**H**

h 299  
HA definition 832  
HA feature 832  
HA manager 832  
haDisable 301  
hadump 302  
haEnable 304  
haFailover 305  
haShow 307  
hasyncstart 309  
hasyncstop 310  
help 311  
help, obtaining 23  
historyLastShow 313  
historymode 315  
historyShow 317, 319  
HP  
    authorized reseller 23  
    storage web site 23  
    technical support 23  
httpCfgShow 319

**I**

i command 320  
ifModeSet 322  
ifModeShow 324  
interfaceShow 325  
interopMode 330  
iodReset 332  
iodSet 333  
iodShow 335  
ipAddrSet 336  
ipAddrShow 338  
islshow 340  
itemlist 341

**K**

killtelnet 344

**L**

licenseAdd 346  
licenseHelp 348  
licenseIdShow 349  
licenseRemove 351  
licenseShow 353  
linkCost 354  
login 357  
logout 358  
loopPortTest 359  
LSDBShow 363

**M**

memShow 367  
mscapabilityshow 368  
msConfigure 371  
msPlatShow 373  
msPlatShowDbCb 375  
msPlcClearDB 377  
msPlMgmtActivate 379  
msPlMgmtDeactivate 381  
msTdDisable 383  
mstdisable 383  
msTdEnable 385  
mstdReadConfig 387  
myid 388

**N**

nbrStateShow 389  
nbrStatsClear 391  
nodefind 393  
nsAliasShow 395  
nsAllShow 397  
nscamshow 399  
nsShow 401  
nsstatshow 403  
nszonemember 405

**P**

passwd [407](#)  
pathinfo [410](#)  
pdshow [416](#)  
perfAddIPMonitor [421](#)  
perfAddReadMonitor [423](#)  
perfAddRWMonitor [425](#)  
perfAddSCSIMonitor [427](#)  
perfaddusermonitor [429](#)  
perfAddWriteMonitor [433](#)  
perfCfgClear [435](#)  
perfCfgRestore [436](#)  
perfCfgSave [438](#)  
perfClearEEMonitor [439](#)  
perfclearfiltermonitor [441](#)  
perfClrAlpaCrc [443](#)  
perfDelEEMonitor [445](#)  
perfDelFilterMonitor [447](#)  
perfHelp [449](#)  
perfSetPortEEMask [451](#)  
perfShowAlpaCrc [454](#)  
perfShowEEMonitor [456](#)  
perfShowFilterMonitor [459](#)  
perfShowPortEEMask [462](#)  
pkicreate [465](#)  
pkiremove [466](#)  
pkishow [468](#)  
portAlphaShow [469](#)  
portcamshow [471](#)  
portcfgdefault [474](#)  
portCfgEport [476](#)  
portCfgGport [478](#)  
portcfgislmode [480](#)  
portCfgLongDistance [482](#)  
portCfgLport [486](#)  
portcfgpersistentdisable [488](#)  
portCfgPersistentEnable [490](#)  
portCfgShow [492](#)  
portCfgSpeed [496](#)  
portCfgTrunkport [498](#)  
portdebug [500](#)  
portDisable [501](#)  
portEnable [503](#)  
portErrShow [505](#)  
portflagsshow [507](#)  
portLEDTest [509](#)  
portLogClear [511](#)  
portLogConfigShow [513](#)  
portLogDump [514](#)  
portLogDumpPort [516](#)  
portLogEventshow [518](#)  
portloginshow [521](#)  
portlogpdisc [523](#)  
portLogReset [524](#)  
portLogResize [525](#)  
portLogShow [526](#)  
portlogshowport [529](#)  
portLogTypeDisabl [531](#)  
portLogTypeEnable [532](#)  
portLoopbackTest [533](#)  
portname [537](#)  
portPerfShow [539](#)  
portRegTest [541](#)  
portRouteShow [543](#)  
portShow [546](#)  
portStats64Show [550](#)  
portstatsclear [552](#)  
portStatsShow [554](#)  
portswap [557](#)  
portswapdisable [559](#)  
portswapenable [560](#)  
portswapshow [561](#)  
porttest [563](#)  
porttestshow [566](#)  
powerofflistset [568](#)  
powerofflistshow [570](#)  
psShow [572](#)  
ptdatashow [574](#)  
ptphantomshow [576](#)  
ptpropshow [578](#)  
ptRegShow [580](#)  
ptRouteShow [582](#)  
ptStatsShow [584](#)

**Q**

quietMode 586

**R**

rack stability, warning 22

reboot 588

related documentation 18

routeHelp 589

**S**

savecore 591

secActiveSize 597

secDefineSize 599

secfabricshow 601

secfcscfailover 603

secGlobalShow 605

sechelp 607

secmodedisable 608

secmodeenable 610

secmodeshow 614

secnonfcspasswd 616

secpolicyabort 618

secpolicyactivate 620

secpolicyadd 622

secpolicycreate 626

secpolicydelete 631

secpolicydump 634

secpolicyfcsmove 638

secpolicyremove 640

secpolycysave 644

secpolicyshow 646

secstatsreset 650

secstatsshow 653

sectemppasswdreset 656

sectemppasswdset 658

sectransabort 660

secversionreset 662

sensorShow 664

setdbg 666

setErrLvl 667

setEsdMode 668

setGbicMode 670

setMediaMode 672

setSfpMod 674

setSplbMode 676

setverbose 678

sfpShow 679

shellFlowControlDisable 683

shellFlowControlEnable 684

slotOff 685

slotOn 686

slotPowerOff 687

slotPowerOn 688

slotShow 689

snmpMibCapSet 691

spinFab 693

spinSilk 697

sramRetentionTest 703

statsTest 706

stopporttest 708

supportShow 710

supportShowCfgDisable 715

supportShowCfgEnable 717

supportShowCfgShow 719

switchBeacon 721

switchcfgpersistentdisable 723

switchcfgpersistentenable 725

switchCfgSpeed 727

switchCfgTrunk 729

switchDisable 730

switchEnable 731

switchName 733

switchReboot 735

switchShow 737

switchShutdown 742

switchStart 744

switchStatusPolicySet 746

switchStatusPolicyShow 750

switchstatuspolicyshow 750

switchStatusShow 752

switchuptime 754

symbols in text 19

symbols on equipment 20

syslogdIpAdd [755](#)  
syslogdIpRemove [757](#)  
syslogdIpShow [758](#)  
systemverification [759](#)

## T

technical support, HP [23](#)  
tempShow [762](#)  
text symbols [19](#)  
timeout [764](#)  
topologyShow [765](#)  
trackchangeshelp [768](#)  
trackChangesSet [769](#)  
trackChangesShow [771](#)  
trunkDebug [772](#)  
trunkshow [774](#)  
tsclockserver [776](#)  
tshelp [778](#)  
tstimezone [779](#)  
turboRamTest [781](#)  
txdpath [784](#)

## U

uptime [788](#)  
uRouteConfig [790](#)  
uRouteRemove [792](#)  
uRouteShow [793](#)

## V

version [796](#)

## W

warning  
    rack stability [22](#)  
    symbols on equipment [20](#)  
web sites  
    HP storage [23](#)  
wwn [798](#)

## Z

zoneAdd [800](#)  
zonecreate [802](#)  
zoneDelete [805](#)  
zoneHelp [807](#)  
zoneRemove [809](#)  
zoneShow [811](#)